

Edgar Filing: Resonant Inc - Form 10-K

Resonant Inc  
Form 10-K  
March 30, 2017  
Table of Contents

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2016

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 001-36467

RESONANT INC.

(Exact Name of Registrant as Specified in Its charter)

Delaware 45-4320930

(State or Other Jurisdiction of (I.R.S. Employer  
Incorporation or Organization) Identification No.)

110 Castilian Drive, Suite 100, Goleta, California 93117

(Address of Principal Executive Offices) (Zip Code)

(805) 308-9803

(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, \$0.001 par value	The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes  No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes  No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," and "smaller reporting

Edgar Filing: Resonant Inc - Form 10-K

company” in Rule 12b-2 of the Exchange Act (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes  No

As of June 30, 2016, the aggregate market value of the voting and non-voting common equity held by non-affiliates was \$24 million, based on the closing price on that date. As of March 29, 2017, the registrant had 14,444,208 shares of common stock issued and outstanding.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant’s Proxy Statement for the registrant’s 2017 Annual Meeting of Stockholders are incorporated by reference in Part III of this Annual Report on Form 10-K. Such Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of December 31, 2016, the last day of the fiscal year covered by this Annual Report on Form 10-K.

---

Table of Contents

RESONANT INC.  
FORM 10-K  
TABLE OF CONTENTS

	Page
<u>Special Note Regarding Forward-Looking Statements</u>	<u>3</u>
 <u>PART I</u>	
<u>Item 1. Business</u>	<u>5</u>
<u>Item 1A. Risk Factors</u>	<u>14</u>
<u>Item 1B. Unresolved Staff Comments</u>	<u>26</u>
<u>Item 2. Properties</u>	<u>26</u>
<u>Item 3. Legal Proceedings</u>	<u>26</u>
<u>Item 4. Mine Safety Disclosures</u>	<u>27</u>
 <u>PART II</u>	
<u>Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	<u>28</u>
<u>Item 6. Selected Financial Data</u>	<u>29</u>
<u>Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>30</u>
<u>Item 7A. Quantitative and Qualitative Disclosures about Market Risk</u>	<u>36</u>
<u>Item 8. Financial Statements and Supplementary Data</u>	<u>37</u>
<u>Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</u>	<u>65</u>
<u>Item 9A. Controls and Procedures</u>	<u>65</u>
<u>Item 9B. Other Information</u>	<u>65</u>
 <u>PART III</u>	
<u>Item 10. Directors, Executive Officers and Corporate Governance</u>	<u>66</u>
<u>Item 11. Executive Compensation</u>	<u>66</u>
<u>Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	<u>66</u>
<u>Item 13. Certain Relationships and Related Transactions and Director Independence</u>	<u>66</u>
<u>Item 14. Principal Accountant Fees and Services</u>	<u>66</u>
 <u>PART IV</u>	
<u>Item 15. Exhibits and Financial Statement Schedules</u>	<u>67</u>
<u>Item 16. Form 10-K Summary</u>	<u>68</u>
<u>Signatures</u>	<u>S-1</u>

Table of Contents

**SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. The words “believe,” “may,” “will,” “potentially,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “would,” “plan,” “expect” and similar expressions that convey uncertainty of future events or outcomes are intended to identify forward-looking statements. These forward-looking statements include, but are not limited to, statements concerning the following:

- the status of filter designs under development;
- the prospects for licensing filter designs upon completion of development;
- plans for other filter designs not currently in development;
- potential customers for our designs;
- the timing and amount of future royalty streams;
- our plans regarding the use of proceeds from our financings and the expected duration of our capital resources;
- our plans regarding future financings;
- our hiring plans;
- the impact of our designs on the mobile device market;
- our business strategy;
- our intentions, expectations and beliefs regarding anticipated growth, market penetration and trends in our business;
- the timing and success of our plan of commercialization;
- our dependence on growth in our customers’ businesses;
- the effects of market conditions on our stock price and operating results;
- our ability to maintain our competitive technological advantages against competitors in our industry and the related costs associated with defending intellectual property infringement and other claims;
- our ability to timely and effectively adapt our existing technology and have our technology solutions gain market acceptance;
- our ability to introduce new offerings and bring them to market in a timely manner;
- our ability to maintain, protect and enhance our intellectual property;
- our expectations concerning our relationships with our customers and other third parties and our customers’ relationships with their manufacturers and customers;
- the attraction and retention of qualified employees and key personnel;
- future acquisitions of or investments in complementary companies or technologies; and
- our ability to comply with evolving legal standards and regulations, particularly concerning requirements for being a public company and United States export regulations.

These forward-looking statements speak only as of the date of this Form 10-K and are subject to uncertainties, assumptions and business and economic risks. As such, our actual results could differ materially from those set forth in the forward-looking statements as a result of the factors set forth below in Part I, Item 1A, “Risk Factors,” and in our other reports filed with the Securities and Exchange Commission. Moreover, we operate in a very competitive and rapidly changing environment, and new risks emerge from time to time. It is not possible for us to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and

Table of Contents

assumptions, the forward-looking events and circumstances discussed in this Form 10-K may not occur, and actual results could differ materially and adversely from those anticipated or implied in our forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this Form 10-K to conform these statements to actual results or to changes in our expectations, except as required by law.

You should read this Annual Report on Form 10-K and the documents that we reference in this Annual Report on Form 10-K and have filed with the Securities and Exchange Commission as exhibits thereto with the understanding that our actual future results and circumstances may be materially different from what we expect.

Table of Contents

PART I

ITEM 1. BUSINESS

Overview

Resonant is a late-stage development company that is creating innovative software, intellectual property, or IP, and a services platform that has the ability to increase designer efficiency, reduce the time to market and lower unit costs in the designs of filters for radio frequency, or RF, front-ends for the mobile device industry. The RF front-end, or RFFE, is the circuitry in a mobile device responsible for analog signal processing and is located between the device's antenna and its digital baseband. The platform we are developing is based on fundamentally new technology that we call Infinite Synthesized Networks®, or ISN®, to configure and connect resonators, the building blocks of RF filters. Filters are a critical component of the RF front-end used to select desired radio frequency signals and reject unwanted signals. Our ISN® platform allows us to develop unique, custom designs that address the increasing complexity of the RFFE due to carrier aggregation, or CA, by both reducing the size of the filter and improving performance. Our goal is to utilize our ISN® platform to support our customers in reducing their time to develop complex filter designs and accessing new classes of filter designs, and to do it more cost effectively.

We are validating and commercializing our technology through the creation of filter designs that address the problems in the high growth RFFE industry created by the growing number of frequency bands in mobile devices. The worldwide adoption of Long Term Evolution (LTE) as the global standard, and the use of mobile devices to access the Internet, has resulted in massive proliferation of frequency bands which, when combined with CA for higher data rates and multiple-input multiple-output (MIMO), has resulted in an ever-increasing number and complexity of filters in the RFFE. We are developing a series of single-band surface acoustic wave, or SAW, filter designs for frequency bands presently dominated by larger and more expensive bulk acoustic wave, or BAW, filters. We are also developing multiplexer filter designs for two or more bands to address the CA requirements of our customers. Finally, we are developing unique filter designs, enabled by ISN®, to replace multiple filters and associated componentry for many bands, with higher performance. In order to succeed, we must convince RF front-end suppliers that our filter designs can significantly reduce the size and cost of their products.

During 2016, we continued to advance the development of our technology in all areas of RF filter design. Our typical customer engagement process begins with the execution of a joint development agreement, or JDA, which provides for a development cycle of six to nine months, following which we enter into a license agreement for specific bands. We estimate that initial shipments of products to original equipment manufacturers, or OEMs, will occur within nine to twelve months following execution of a license agreement, which shipments could in turn generate royalty revenues. These agreements typically provide for upfront design fees and royalty payments for each unit sold using our filter designs and typically last for a minimum of two years, and in many cases for the life of the design.

We began 2016 with no active JDAs or license agreements. Throughout the course of the year, we successfully engaged and contracted developments with six separate customers for greater than 25 distinct filter designs.

Leveraging our ISN® platform, we engaged on complex designs ranging from sophisticated "WiFi Co-existence" filters to high frequency duplexers and quadplexers. In addition to these discrete solutions we also were engaged to design a number of filters specifically targeted for module integration. Discrete filters and filters targeting module integration require different packaging (wafer level rather than chip scale packaging).

We believe licensing our designs is the most direct and effective means of validating our ISN® platform and related IP libraries to address this rapidly growing market. Our target customers make part or all of the RF front-end. We intend to retain ownership of our designs, and we expect to be compensated through license fees and royalties based on sales of RF front-end filters that incorporate our designs. We currently do not intend to manufacture or sell any physical products or operate as a contract design company developing designs for a fee.

We anticipate that once a development agreement is signed and design begins, there could be 12 to 36 months before the start of royalty payments under a particular license, depending on the complexity and scope of the engagement.

We plan to continue to pursue filter design projects with existing and potential customers and other strategic partners. These types of arrangements may subsidize the expansion of our IP libraries and further the development of our ISN® platform, as well as offer complementary technology and market intelligence. We also intend to investigate the

potential of licensing part or all of our ISN<sup>®</sup> software design suite to potential customers in the RFFE industry. However, we intend to retain ownership of our technology, software, designs and related improvements. Our goal is to establish and leverage alliances with new and existing customers, who will help grow the market for our designs by integrating them with their own proprietary technology

## Table of Contents

and products, or by using our software products for their own designs, thus combining their own particular strengths with ours to provide an extensive array of solutions.

### Our History

Our technology was originally pioneered by Superconductor Technologies Inc., or STI. STI commercialized discoveries in high temperature superconductors by developing unique RF filter technology and creating high performance RF filters for cellular towers. STI had a program from 2007 to 2010 to develop electronically reconfigurable RF filters for mobile devices using SAW filter technology. Dr. Robert Hammond was STI's Chief Technology Officer during this time. When STI halted work on the RF filter program in 2010 in order to devote its resources to the development of high temperature superconducting wire, Dr. Hammond, along with Terry Lingren, then serving as Vice President of Engineering at Kyocera Communications, Inc., and Neal Fenzi, who was then serving as Chief Engineer at STI, co-founded Resonant in order to continue to develop the RF filters that STI initiated. In May 2012, Resonant LLC was formed in California. We commenced business on July 6, 2012 with initial contributions from our founders and STI. We changed from a limited liability company to a corporation in an exchange transaction in June 2013. We completed our IPO on May 29, 2014.

In July 2016, we acquired all of the issued and outstanding capital stock of GVR Trade S.A., or GVR, for a purchase price of approximately \$1.2 million consisting of \$661,000 in cash and 125,000 shares of our common stock. GVR is a Swiss-based company specializing in the consultation and design of SAW and BAW devices. We believe the acquisition is a logical extension to the existing long-term cooperation between our two companies and will further expand our ability to support licensing agreements for both current and future partners and customers. GVR is now a wholly owned direct subsidiary of Resonant.

### Industry Background

#### Glossary

The following is a glossary of useful terms:

**Band, channel or frequency band**—a designated range of radio wave frequencies used to communicate with a mobile device.

**Bulk acoustic wave (BAW)**—an acoustic wave traveling through a material exhibiting elasticity.

**Duplexer**—a bi-directional device that connects the antenna to the transmitter and receiver of a wireless device and simultaneously filters both the transmit signal and receive signal.

**Carrier Aggregation (CA)**—the aggregation, or adding together, of multiple carriers (frequency bands) to meet the LTE-Advanced specification requirements, allowing for increased transmission bandwidth delivery of higher data rates, improved capacity and more efficient use of a carriers fragmented spectrum.

**Filter**—a series of interconnected resonators designed to pass (or select) a desired radio frequency signal and block unwanted signals.

**Reconfigurable filter (previously referred to as Tunable)**—a single filter that is capable of being tuned or reconfigured between two or more predetermined bands.

**Resonator**—a device that naturally oscillates (or resonates) at specific frequencies. The oscillations in a resonator can be either electromagnetic or mechanical (including acoustic). Resonators are the building blocks for filters.

**RF front-end**—the circuitry in a mobile device responsible for the analog signal processing which is located between the antenna and the digital baseband.

**Surface acoustic wave (SAW)**—an acoustic wave traveling along the surface of a material exhibiting elasticity, with an amplitude that typically decays exponentially with depth into the substrate.

**Temperature-Compensated SAW (TC-SAW)**—a SAW device which has additional material alterations to reduce its variation with changes in temperature.

### The Mobile Internet

The need for duplexers and other filters in the RF front-end of mobile devices is growing rapidly due to rising consumer demand for always-on wireless broadband. Mobile devices such as smartphones and tablets are quickly becoming





Table of Contents

the primary means of accessing the internet. According to Cisco, worldwide mobile data traffic grew 74% in 2015 and will grow at a compounded annual growth rate of 53% from 2015 to 2020 - almost an eightfold increase. Cisco also predicted that the total number of smartphones will be nearly 50% of all global devices and connections by 2020. The exponential growth in mobile data traffic is testing the limits of existing wireless bandwidth. Carriers and regulators have responded by opening new RF spectrum, driving up the number of frequency bands in mobile devices. As a prime example, the AWS-3 spectrum auction conducted by the FCC, which closed on January 29, 2015, raised a record \$44.9 billion for an additional 65MHz of spectrum in the United States. Similar auctions are occurring worldwide.

According to Navian, the market for RF front-end filters in mobile devices was 40.6 billion filters in 2016 and will grow to an estimated 74.8 billion filters by 2019.

Figure 1—Projected growth of the market for RF front-end filters including duplexers and quadplexers in mobile devices from 2016 through 2019 (in billions of filters). Source: Navian.

Table of Contents

In addition to RF front-end filter unit growth, filter sales growth is expected to follow and is estimated to be \$8.0 billion in 2016 and is forecasted to reach \$14.1 billion by 2019, according to Navian.

Figure 2—Projected growth of the market for RF front-end filters, including duplexers and quadplexers, in mobile devices from 2016 through 2019 (in billions of dollars). Source: Navian.

Adding RF spectrum to increase capacity and data-rate is not a complete solution. The added spectrum does not come in large contiguous blocks, but rather in small channels or bands of varying size and frequency. Thus, more data means more bands, and the result is a rapid and substantial increase in the number of bands in mobile devices.

**Challenges Faced by the Mobile Device Industry**

The world is progressing toward ubiquitous RF coverage in which almost all devices will be connected, most wirelessly. Technology experts predict that by 2021 there will be over 26 billion connected devices operating worldwide and we will be measuring mobile usage in Exabytes. This overwhelming demand for wireless data has driven the carriers and regulators to open new spectrum bands.

This substantial and rapid increase in bands has created several significant problems, including a corresponding increase in the number of filters and duplexers in mobile devices. Traditional RF front-end solutions typically require one duplexer for each frequency band. The most recent iPhone, the iPhone 7, supports coverage for 19 FDD-LTE and 4 TDD-LTE bands, in addition to support for previous wireless technology generations, 3G and 2G, with each band requiring a filter, either as an individual filter, a duplexer or a quadplexer, depending upon the spectrum and CA requirements. This increase in number and complexity of filters is dramatically driving up the cost of RF front-ends. In the latest global smartphones, filters and duplexers comprise more than half of the cost to the RF front-end, according to a Barclays' analysis of the iPhone 7.

The growing number of duplexers and filters is also increasing the total size of the RF front-end. In some cases, size constraints require the mobile device manufacturer to fragment its product offering into multiple versions, each with a limited set of duplexers customized for a particular geographic region and in some cases focused on just one carrier network. Multiple versions of a mobile product increases manufacturing, inventory and distribution costs. In addition, consumers can find it difficult to roam between carriers and/or countries due to this splintering of bands and phone models. Mobile device manufacturers would prefer to make one version of a product containing a full set of duplexers that can be electronically selected as required for a particular carrier network.

In addition, the new, higher frequency bands tend to use a relatively expensive BAW technology. Mobile device manufacturers would prefer to use SAW technology because of its lower cost and smaller size. However, conventional filter designs using SAW technology do not perform adequately in high frequency bands or in bands with closely spaced receive and transmit channels, typical of many new bands.

Table of Contents

Adding to the complexity of the industry, mobile devices must now be capable of receiving from two to as many as five downlink bands simultaneously, known as downlink carrier aggregation, or CA. This carrier aggregation requirement creates the need for complex multiplexing filters, or multiplexers, which are significantly more complex than duplexers and effectively require two duplexers for each CA combination. There will be an estimated 200 worldwide combinations of CA cases, creating increased complexity and cost to RF front ends. In the case of a quadruplexer, with four different frequency bands, within each band the signal loss must be minimized, while rejecting three bands often in close proximity. Duplexers must only reject a single band. Mobile Experts predicts that more than 28 billion RF front-ends will be shipped supporting CA in 2021. This rising complexity in the industry is also exacerbating the constraints on design capacity and resources.

Figure 3-Projected growth of the market for mobile devices enabled for CA from 2015 through 2021 (in billions of units). Source: Mobile Experts.

Our Technology

RF front-end module companies currently produce filters internally or purchase filters from third-party manufacturers, such as Murata, Taiyo-Yuden, TDK-EPCOS, WISOL and Avago/Broadcom. These module companies and filter manufacturers design filters using their own internal resources, which are proving insufficient to meet the explosive growth in both total global filter demand and unique filter designs, as well as the increasingly complex filter requirements necessitated in part by crowded spectrum and carrier aggregation. We believe that our patented ISN technology will enable us to design complex filter products at approximately half the unit cost and in approximately half the time of traditional approaches. ISN can be summarized as a three-step process:

We synthesize RF acoustic devices. We have developed a large suite of proprietary mathematical methods and software tools that allow us to find better solutions because we can explore a much larger set of possible solutions.

Our ISN tools and methods draw upon a century of network synthesis techniques. In other words, rather than rely on a single design solution (the acoustic wave ladder that is used almost solely in this industry to date), we generate, or synthesize, large numbers of unique solutions specifically for each set of requirements. This allows us to create filters using existing manufacturing methods, such as SAW manufacturing methods, that perform as well as those using the higher cost methods of BAWs. These synthesized solutions provide a framework for generating circuit models for optimization.

## Table of Contents

We use circuit models to optimize initial designs. Most of this industry models acoustic wave filters using a coupling-of-modes, or COM, model. In contrast, we use circuit models derived from the actual physics of acoustic wave filters. Circuit models are computationally much faster, which allows for very quick optimization of the many possible solutions that result from the synthesis process. We can quickly compare large numbers of different, optimized solutions before commencing the third step - lengthy but highly accurate simulations based on fundamental methods.

We use fundamental models to simulate final designs. Our highly accurate models are based entirely on fundamental material properties and dimensions, again unlike the common practice in this industry today. The precision and accuracy of our models allows for far fewer turns through the fab to reach the desired product performance. Because our models are fundamental, integration with our foundry and fab customers is eased due to the understanding of the basic material properties and dimensions of the fab.

### Our Commercialization Plan

We plan to pursue filter design projects with potential customers and other strategic partners, and we believe licensing our designs is the most direct and effective means of delivering our solutions to the market and validating the technical advantages of our tools and IP. These types of arrangements may subsidize filter design costs, as well as offer complementary technology and market intelligence. However, we intend to retain ownership of our technology, designs and related improvements and charge royalties based on sales of filters that incorporate our designs. We generally do not intend to manufacture or sell any physical products or operate as a contract design company developing designs for a fee. Our strategy is to establish and leverage alliances with customers, who will help grow the market for our designs by integrating them with their own proprietary technology and products, thus combining their own particular strengths with ours to provide an extensive array of solutions and to develop and license filter designs that offer improvements in cost, size and performance of RF front-ends. The goal for our designs is to improve profit margins and increase market share for our customers.

Our customers are filter manufacturers, SAW foundries, RFFE module manufacturers, transceiver suppliers and mobile handset OEM's. We will license specific, custom designs to these customers. Our plan is to charge royalties at a fixed amount per filter or as a percentage of sales price. We expect to generate substantially all of our near-term revenues with these types of licensing arrangements. Each filter design and related royalty stream is expected to have a finite commercial life as mobile devices continue to evolve. Our plan is to offer our customers replacement designs as existing designs become obsolete.

We anticipate that once a development agreement is signed and design begins, there could be 12 to 36 months before the start of royalty payments under a particular license, depending on the complexity and scope of the engagement. Our products will be designed for manufacture with existing high-volume fabrication processes allowing rapid time to market, but we do not plan to manufacture or sell any physical components. Unlike a traditional manufacturing company, we intend to create designs for manufacturers eliminating for us the costs and problems associated with manufacturing and inventory. This allows us to concentrate on our unique expertise, leaving the hardware manufacturers to drive their own economies of scale.

### Single Band Designs

We continue to develop a series of SAW filter designs for RF frequency bands presently dominated by the larger and more expensive BAW filters. We completed our first single-band filter design (a duplexer) during the first quarter of 2015 with our first customer. In 2016, we continued to develop SAW filter designs for customers. Some of these filter designs are for duplexers that have historically been TC-SAWs or BAWs while others are for discrete SAW filters that may need improvements in performance, size or cost. The single band designs included WiFi Co-Existence filters, which pass licensed wireless frequencies, while protecting WiFi from interference, and designs for module applications which require wafer-level (WL) packaging and modeling of the module board. We believe that, using our ISN technology combined with our experience and know-how, we can design innovative SAW filters that meet the performance requirements for many of these bands but at significantly less cost than that of BAW filters or even TC-SAW filters they would replace. We also believe that these single band filter designs, whether replacing existing SAWs or TC-SAW and BAWs designed as SAWs, are the earliest opportunity for revenues.



## Table of Contents

### Multiplexer Designs

Wireless carriers worldwide are experiencing increasing demand for higher data speeds. CA allows multiple data streams from different frequencies to be added together to provide increased data rate for the mobile users. However, CA further complicates the required filter characteristics. During the fourth quarter of 2015, based upon requests from potential customers, we performed some initial investigations on the feasibility of designing multiplexers that would allow four RF paths (two transmit and two receive) to operate simultaneously, allowing CA for both receive and transmit paths. Quadplexers, (4-RF path multiplexer) as described above, enable CA on both receive and transmit paths and reduce the RF front-end complexity by reducing the number of switches, but the complexity of the filters themselves increases dramatically. During 2016, we started designs for four quadplexers, including one quadplexer for a module application. We believe that our ISN technology is ideally suited to these difficult filter design problems that covers a wide frequency range with much more demanding performance requirements.

Although some band combinations for aggregation will not require multiplexers, we believe that multiplexers are the best solution for bands in close frequency proximity. We plan to develop a family of high performance multiplexer designs to address this growing market.

### Advance Developments

We believe that our ISN technology will also enable us to design novel filters that are more than simple replacements to existing slots, but rather can enable an architecture change, or can provide a step function improvement in performance, size and cost to a handset manufacturer. These include:

• Triplexers/Multiplexers- wideband, low loss multiplexed filters which allow efficient sharing of antennas. As more spectrum becomes available above 2.5GHz the focus will be in minimizing the losses at the higher frequency.

• Multi-passband Filters - small size, low loss filters to maximize printed circuit board space and minimize loss, particularly suited for CA applications. The absence of switching elements further reduces size and cost for CA.

• Reconfigurable Filters - electronically programmed in real time for different RF frequency bands so that one filter can do the work of many and therefore replace multiple filters and significantly lower the cost and size of RF front-ends.

• The design of a reconfigurable filter has not ever been commercialized for use in the RF front end and there can be no assurance that we can ever design a reconfigurable filter that meets the necessary specifications and performance criteria to become a commercial filter design nor that any prospective customer will be interested in advancing the design. In addition, the widespread implementation of CA is changing the requirements for a reconfigurable filter.

Our immediate focus is to address the problems in the RF front-end with innovative single-band and multiplex designs made possible with our ISN technology. These designs present the greatest near-term potential for commercialization of our ISN technology. We expect the trend towards spectrum proliferation, in addition to CA and MIMO, will require complex filter multiplexing. We believe our ISN technology will enable cost effective designs for these applications.

### Intellectual Property

We have an active program protecting our proprietary technology. We engage in a thorough process of intellectual property landscaping that provides an in-depth analysis of not only the markets we are addressing but also adjacent markets, so that we can tactically and strategically protect our position in the market through the filing of strategic patents. Our patent portfolio reflects both the initial technology contribution of STI, as well as our own patent filings since our founding. Through our landscaping and advanced product development processes we have plans to file additional patents this year.

Our patent portfolio comprises more than 100 issued and pending patents. This patent portfolio relates primarily to the following subject matter:

- Physical Implementation
- Design Synthesis and Optimization Speed
  - Network Synthesis
  - Image Design
  - Circuit Designs
- Simulation Accuracy
- Next Generation Designs/Architectures





## Table of Contents

### Simplifying the RFFE

- Circuit Structure
- Critical Design Requirements
  - Power handling and linearity
  - Temperature dependence
  - Yield Analysis

We also have an active and ongoing program to identify, protect and commercialize our intellectual property. This program includes the development of a comprehensive patent strategy. We routinely use specialized outside firms to assist in these endeavors. These firms assist with invention identification, intellectual property strategy and competitive landscape analysis.

Our research has not identified any public information, such as patents or published articles, relating to our technology that would affect our freedom to operate. However, there can be no assurance that our pending patent applications or any future patent applications will be approved or will not be challenged successfully by third parties, that any issued patents will protect our technology or will not be challenged by third parties, or that the patents of others will not have an adverse effect on our ability to do business. Furthermore, there can be no assurance that others will not independently develop similar or competing technology or design around any patents that have been or may be issued to us.

We also rely on trademark, mask works, copyright and trade secret laws to protect our intellectual property. We have registered U.S. trademarks for “Resonant,” “ISN” and “Infinite Synthesized Networks.” We protect our trade secrets and other proprietary information by requiring confidentiality agreements from all our employees, consultants and third parties having access to such information. Despite these efforts, there can be no assurance that others will not gain access to our trade secrets, or that we can meaningfully protect our technology. In addition, effective trademark, copyright and trade secret protection may be unavailable or limited in certain foreign countries. Although we intend to protect our rights vigorously, there can be no assurance that such measures will be successful.

### Competition

To our knowledge, we have no competitors in the electronic design automation or licensing business that are exclusively focused on RF front-end filters. We have spent many years developing ISN<sup>®</sup>, and our own patented suite of design tools created specifically for this purpose. No comparable acoustic wave filter design tool exists in the market today. In combination with our experienced design team, we believe we offer our customers a novel solution to the need for increasingly complex filter designs developed by an independent, stand-alone company that is not presently offered by any of our competitors.

We have advantages that we believe present significant barriers to entry for potential competitors that desire to replicate our business model:

- a large and growing portfolio of patents;
- a suite of proprietary software design tools;
- a growing number of customers;
- a highly experienced design team; and
- a multi-year technology lead.

We do compete with the existing filter designs and design capabilities of some of our customers and target customers and their filter manufacturers. These companies include, among others, RF module companies such as Skyworks Solutions Inc., Qorvo, Inc., Broadcom and Murata Manufacturing Co., Ltd. and filter designers and manufacturers such as TDK Epcos, Taiyo Yuden, and WISOL as well as other RF front-end component manufacturers. We must demonstrate to our customers, target customers and their filter manufacturers that switching to our designs will give them a competitive advantage by providing market entry or sufficiently improving the cost, size, and performance of their current products to justify our royalty rates.

The use of our patented ISN tools, not only enables lower cost and smaller size SAW solutions for single band and multiplexer designs but also enables development of creative filter solutions for next generation RFFE architectures that, if successful will offer new, highly competitive solutions to many of the challenges facing the manufacturers of

RF front end modules.

Employees

We currently have 37 employees, 27 of which are on our technical staff and 10 of which are devoted to finance, marketing and administrative matters. We also use several outside consultants.

12

---

Table of Contents

Our principal executive offices are located at 110 Castilian Drive, Suite 100, Goleta, California 93117, and our telephone number is 805-308-9803. Our website address is [www.resonant.com](http://www.resonant.com). The information contained on, or that can be accessed through, our website is not a part of this report.

13

---

Table of Contents

ITEM 1A. RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below, together with all of the other information in this Form 10-K, including our consolidated financial statements and related notes, before investing in our common stock. If any of the following risks materialize, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that event, the price of our common stock could decline, and you could lose part or all of your investment.

Risks Related to Our Business and Our Industry

We may require additional capital to continue operations in the future, which capital may not be available on terms acceptable to us, if at all.

Our principal sources of liquidity as of December 31, 2016 consist of existing cash balances and investments of \$9.8 million. In the fourth quarter of 2016, we used approximately \$2.9 million in cash for operations. Due to these conditions, substantial doubt exists as to our ability to continue as a going concern. In February, 2017 we raised an additional \$7.5 million through a private placement of common stock and warrants. After evaluation of these conditions and events, we believe our current resources will provide sufficient funding for planned operations into 2018. If necessary, we will seek to raise additional capital from the sale of equity securities or the incurrence of indebtedness to allow us to continue operations. There can be no assurance that additional financing will be available to us on acceptable terms, or at all. Additionally, if we issue additional equity securities to raise funds the ownership percentage of our existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Additionally, we may be limited as to the amount of funds we can raise pursuant to SEC rules and the continued listing requirements of NASDAQ. If we cannot raise needed funds, we might be forced to make substantial reductions in our operating expenses, which could adversely affect our ability to implement our business plan and ultimately our viability as a company.

We have a history of operating losses and we may never achieve or maintain profitability or positive cash flows.

We have a limited operating history and only a preliminary business plan upon which investors may evaluate our prospects. We have generated minimal revenues and we have a history of losses from operations with an accumulated deficit as of December 31, 2016 of \$46.2 million. Our operations have been funded with initial capital contributions, proceeds from the sale of equity securities and debt. We intend to continue to make investments to support our business growth and will require additional funds to respond to business challenges, including the need to develop new technology, improve our operating infrastructure or acquire complementary businesses and technologies. Our ability to generate revenues and achieve profitability and, ultimately, positive cash flows, may depend on whether we can obtain additional capital when we need it and will depend on whether we complete the development of our technology and find customers who will license our designs. There can be no assurance that we will ever generate adequate revenues to achieve profitability and positive cash flows.

Our business model is based on licensing filter designs, which is unproven. Historically, our target customers have relied on their own filter designs or purchased finished filters from a manufacturer, and have not licensed third-party designs. Consequently, we may not succeed in our licensing strategy, which would require us to adopt a new business model and would have a material adverse effect on our potential for generating revenues and potentially threaten our viability.

Our business model is based on licensing our proprietary filter designs. We do not intend to manufacture or sell any physical products or operate as a contract design company developing designs for a fee. We believe licensing our designs is the most direct and effective means of delivering our solutions to the market. We intend to retain ownership of our designs and charge royalties based on sales of RF front-end modules that incorporate our designs.

Our target customers either make part or all of the RF front-end. These customers have historically used their own filter designs or purchased finished filters from a manufacturer. Our business model is new to the filter industry, and we may encounter resistance to our licensing strategy. The failure of our business model would have a material adverse effect on our potential for generating revenues and potentially threaten our viability.

We may not be able to complete a design that meets our customers' specifications. Even if we succeed in developing a design that meets all of a customers' specifications, the customers could decline to use our designs in their products. Further, our customers' product could fail in the marketplace. Any of these events would have a material adverse effect on our business and potentially threaten our viability.

We are currently working on filter designs for customers that have given us stringent performance specifications. In addition, our customers have shipped pre-production sample filter quantities of our designs to their customers for further

Table of Contents

evaluation. If successfully developed and selected by our customer, our designs will compete against other technologies for inclusion in our customers' products. Our customers' final products will then compete against other products and technologies for inclusion in mobile devices in the marketplace. There can be no assurance that we can complete our designs, that our final designs will have acceptable performance and meet our customers' specifications, or if our pre-production sample filter shipments will be selected for production. Even if our filter designs have acceptable performance, there are a number of other considerations influencing the customer's decision whether to use our design, such as packaging type and manufacturing cost, many of which are beyond our control. The decision to use our designs is solely within our customers' discretion. Further, if our filter design is selected by a customer for inclusion in its design or product, there is no guarantee that the customer's design or product will be selected for inclusion in mobile devices. The failure to be selected at the design stage or the device stage would have a material adverse effect on our business and potentially threaten our viability.

We are not a filter manufacturer, and thus we are reliant on filter fabricators or manufacturers to manufacture filters from our designs. For some of our customers that will not manufacture our design themselves, we may be required to have our customer approve the filter manufacturer, and the customer will not license our design unless the manufacturer can demonstrate the ability to economically produce the duplexer design in large volumes. We believe our designs can be manufactured using existing technology, but we will be dependent on the manufacturer's filter fabrication processes and capabilities for our filter designs. Even if we successfully design a fully compliant duplexer, the customer will not license our design unless the manufacturer can demonstrate the ability to economically produce the design in large volumes. We do not have any control over the manufacturer. We cannot assure you that the manufacturer will have the necessary technology, skills and resources to successfully manufacture our design in commercial quantities.

Our designs will be complex and may prove difficult to manufacture in commercial quantities. We will be relying on our customers and filter fabricators or manufacturers to build our designs. Our business could fail if they encounter difficulties manufacturing our designs in commercial quantities.

We are developing complex RF designs, which is inherently challenging. We have only manufactured our designs in small pre-production quantities and as initial prototypes. Furthermore, we will be relying on our customers and filter fabricators or manufactures to manufacture our designs. They will need to manufacture our designs in commercial quantities at an acceptable cost, and we will have little or no control over the manufacturing process. They must also operate and maintain sophisticated manufacturing equipment, and equipment failures can have adverse consequences on production volumes, yields and schedules. They may encounter difficulties in scaling up production of our designs, including problems with quality control, raw material and component supply shortages, low manufacturing yields, increased costs, shortages of qualified personnel and/or difficulties associated with compliance with regulatory requirements. Any of these problems may adversely affect the timing and amount of our future revenues. Additionally, if our customers and their suppliers encounter difficulties manufacturing our designs in commercial quantities, our business could fail.

Our business success relies on manufacturers to fabricate our designs, and market acceptance of our designs could be adversely affected if the manufacturers decline to manufacture our designs.

We are a filter design company and will not commercially manufacture any products. Our business model is to license our designs to customers, who will manufacture our designs themselves or rely on third party manufacturers, commonly referred to as foundries, to fabricate our designs for integration into the customer's overall product. Many foundries offer potentially competitive filter technology as part of their standard product line or offer the services of in-house design teams which may consider us competition. In this case, our customers may face resistance by their foundries to manufacture our designs. We believe the economics can be structured to make it attractive to the foundries to manufacture our designs for our potential customers but we cannot be assured of the success in convincing them of the value of manufacturing our designs. The reluctance of foundries to manufacture our designs could adversely affect the market acceptance of our designs.

We develop and test our designs under laboratory conditions using low volume production samples. Once in production, our designs may not perform as well or prove reliable due to manufacturing variations and operating conditions. This could adversely affect our business.

We develop and test our designs under laboratory conditions using low volume production samples. The transition from product development to commercial production requires high volume manufacturing which introduces product variations. These variations can adversely affect performance and reliability. Similarly, our designs may not perform as well or prove sufficiently reliable under actual operating conditions. This could adversely affect our business.

15

---

## Table of Contents

We are actively working on filter designs with, and expect to derive all of our revenues from, a small number of customers. Our failure to retain or expand customer relationships will have an adverse effect on our revenues. We are currently working on filter designs with, and expect to derive our revenues from, a small number of customers. Our failure to retain or expand customer relationships, or any problems we experience in collecting receivables from them, would harm our financial condition and results of operations. Additionally, our industry is experiencing consolidation among suppliers and manufacturers of RF front-end components and modules, including activities of module suppliers who vertically integrate by acquiring component suppliers and fabs. This may lead to fewer customers and reduced demand for our designs and replacement of our designed products by the combined entity with those of our competitors, each of which could adversely affect our business, financial condition and results of operations.

We plan to be a design firm licensing our filter designs to manufacturers of RF front-ends for mobile devices. If our circuit designs do not achieve widespread market acceptance among RF front-end manufacturers, we will not be able to generate the revenue necessary to support our business.

Achieving acceptance among RF front-end manufacturers of our designs will be crucial to our continued success. We have no history of marketing designs and we may fail to generate significant interest in our designs. These and other factors may affect the rate and level of market acceptance, including:

- our royalty fees and the cost of our designed filters relative to other competing designs and technologies;
- perception by RF front-end manufacturers and mobile device manufacturers;
- press and blog coverage, social media coverage, and other publicity and public relations factors which are not within our control; and
- regulatory developments related to manufacturing, marketing and selling our designs.

If we are unable to achieve or maintain market acceptance, our business would be harmed.

The complexity of our designs could result in unforeseen delays or expenses from latent defects that could reduce the market acceptance for our designs, damage our reputation and adversely affect our future revenues and operating costs.

We are developing highly complex filters designs using a new approach. We have produced only a limited number of designs that have gone into commercial production and therefore cannot be certain our methods and testing procedures are adequate to detect latent design defects. If any of our designs contain latent defects, we may be unable to correct these problems. Consequently, our reputation may be damaged and customers may be reluctant to buy our designs, which could harm our ability to attract customers and negatively impact our financial results. These problems may also result in claims against us by our customers or others.

Failures in the products or services of our customers or licensees, including those resulting from defects or errors, could result in decreased sales and harm our business.

Our success depends in large part on the demand for the mobile wireless devices and other products that incorporate our proprietary filter designs. Our customers' products are inherently complex and may contain defects or errors unrelated to our designs that are detected only when the products are in use. Any defects or errors in the products of our customers and licenses could result in product recalls or the discontinuation of those products, which could have an adverse impact on our operating results due to a delay or decrease in demand for our designs. Further, security failures, defects or errors in mobile wireless devices, such as the recent issues with the Galaxy Note 7 that caused Samsung to discontinue that product, has led to increased scrutiny of component suppliers. If our customers and licenses do not perceive our designs, or if mobile device manufacturers do not perceive the products of our customers or licensees, to be of high quality, or if we or our customers and licensees are unable or unwilling to comply with heightened quality assurance requirements of mobile device manufacturers, we may be unsuccessful in having our designs incorporated into finished products.

Our designs may not gain widespread acceptance unless they offer greater benefits to our customers than offered by competing RF filter designs.

RF front-end manufacturers are primarily concerned with the cost, size and performance of RF filters. Our designs may not gain widespread acceptance unless, as compared to competing RF filter designs, they are smaller in size, can



be fabricated at reduced cost or designed in less time, or improve performance. There can be no assurance that our surface acoustic wave, or SAW, filter designs will cost sufficiently less to manufacture than existing bulk acoustic wave, or BAW, filters, or can be designed in less time, to prove economically attractive to RF front-end manufacturers or that our filter designs will be smaller in size or perform better.

Table of Contents

Our technologies are not yet verified in practice or on a commercial scale.

Our technologies have not been tested in a commercial setting or on a commercial scale. There is no assurance that we will be able to fully develop or license our proposed designs on a timely basis, or at all.

Our development cycles are long and our final designs may no longer remain competitive upon completion.

We operate in an industry which is subject to rapidly evolving technologies. Because our designs are expected to have long development cycles, we must anticipate changes in the marketplace and the direction of technological innovation and customer demands. To compete successfully, we will need to demonstrate the advantages of our designs and technologies.

Our industry is subject to intense competition and rapid technological change, which may result in designs, products or new solutions that are superior to our designs under development. If we are unable to anticipate or keep pace with changes in the marketplace and the direction of technological innovation and customer demands, our designs may become less useful or obsolete and our operating results will suffer.

We operate in an industry which is subject to intense and increasing competition. Our future success will depend in large part on our ability to establish and maintain a competitive position in current and future technologies. Rapid technological development may render our designs and technologies obsolete. Many of our competitors have or may have greater engineering, sales, marketing, operational, corporate and financial resources, and more experience in research and development than we have. We cannot assure you that our competitors will not succeed in developing or marketing technologies or products that are more effective or commercially attractive than our designs or that would render our technologies and designs obsolete. We may not have or be able to raise or develop the financial resources, technical expertise, or support capabilities to compete successfully in the future. Our success will depend in large part on our ability to maintain a competitive position with our technologies.

If our principal end markets fail to grow or experience declines, our net revenue may not meet our business plan expectations.

According to our business plan, our initial designs will be incorporated into mobile wireless devices. Accordingly, demand for our designs is dependent on the ability of mobile wireless device manufacturers to successfully sell wireless devices that incorporate our designs. We cannot be certain whether these manufacturers will be able to create or sustain demand for their wireless devices that contain our designs or how long they will remain competitive in their business, if at all. The success of these mobile wireless device manufacturers and the demand for their wireless devices can be affected by a number of factors, including, but not limited to:

- market acceptance of their mobile wireless devices that contain our designs;
- the impact of slowdowns or declines in sales of mobile wireless devices in general;
- their ability to design products with features that meet the evolving tastes and preferences of consumers;
- fluctuations in foreign currency;
- relationships with wireless carriers in particular markets;
- the implementation of, or changes to, mobile wireless device certification standards and programs;
- technological advancements in the functionality and capabilities of mobile wireless devices;
- the imposition of restrictions, tariffs, duties, or regulations by foreign governments on mobile wireless device manufacturers;
- failure to comply with governmental restrictions or regulations;
- cost and availability of components for their products; and
- inventory levels in the sales channels into which mobile wireless device manufacturers sell their products.

Our proprietary rights may be difficult to enforce, which could enable others to copy or use aspects of our intellectual property without compensating us, thereby eroding our competitive advantages and harming our business.

Our success depends, in part, on our ability to protect proprietary methods and technologies that we develop under the intellectual property laws of the United States, so that we can prevent others from using our inventions and proprietary information. If we fail to protect our intellectual property rights adequately, our competitors might gain access to our technology, and our business might be adversely affected. We rely on trademark, copyright, mask works, trade secret and patent laws, confidentiality procedures and contractual provisions to protect our proprietary methods and

technologies. We currently hold patents and have pending patent applications related to our technology solutions. Valid patents may not be issued from our pending applications, and the claims allowed on any issued patents may not be sufficiently broad to protect our technology or offerings and services. Any patents we currently hold or that may be issued to us in the future may be

## Table of Contents

challenged, invalidated or circumvented, and any rights granted under these patents may not actually provide us with adequate defensive protection or competitive advantages. Additionally, the process of obtaining patent protection is expensive and time-consuming, and we may not be able to prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner.

Policing unauthorized use of our technology is difficult. Additional uncertainty may result from changes to intellectual property legislation enacted in the United States, including the recent America Invents Act, and other countries and from interpretations of the intellectual property laws of the United States and other countries by applicable courts and agencies. In addition, the laws of some foreign countries may not be as protective of intellectual property rights as those of the United States, and mechanisms for enforcement of our proprietary rights in such countries may be inadequate. From time to time, legal action by us may be necessary to enforce our intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement. Such litigation could result in substantial costs and the diversion of limited resources and could negatively affect our business, operating results and financial condition. If we are unable to protect our proprietary rights (including aspects of our technology platform) we may find ourselves at a competitive disadvantage to others who have not incurred the same level of expense, time and effort to create and protect their intellectual property.

Furthermore, we acquired some of the patents we currently hold from Superconductor Technologies, Inc., or STI. Although we believe we have obtained valid assignments of patent rights from STI and STI has obtained valid assignments of patent rights from all inventors, if an inventor did not adequately assign his or her patent right to STI or STI did not adequately assign its patent rights to us, a third party could obtain a license to the patent from such inventor or STI. This could preclude us from enforcing the patent against such third party. In addition, because we acquired our patents from STI, some of the inventors of our patents are not our employees and they are not obligated to assist us in prosecuting, maintaining, defending and enforcing such patents. Without the cooperation of the inventors of our patents, it may be difficult for us to prevail in any legal action involving the intellectual property rights under our patents. Additionally, the inventors may have information, trade secrets and know-how learned while at STI that is not our property and if disclosed could provide competitors with insights that allow them to invent around our patented technology.

Accordingly, despite our efforts, we may be unable to obtain adequate patent protection, or to prevent third parties from infringing upon, misappropriating or inventing around our intellectual property.

We may be subject to intellectual property rights claims by third parties, which are extremely costly to defend, could require us to pay significant damages and could limit our ability to use certain technologies.

Third parties may assert claims of infringement of intellectual property rights in proprietary technology against us for which we may be liable or have an indemnification obligation. Any claim of infringement by a third party, even those without merit, could cause us to incur substantial costs defending against the claim and could distract our management from our business.

Although third parties may offer a license to their technology, the terms of any offered license may not be acceptable and the failure to obtain a license or the costs associated with any license could cause our business, results of operations or financial condition to be materially and adversely affected. In addition, some licenses may be non-exclusive, and therefore our competitors may have access to the same technology licensed to us. Alternatively, we may be required to develop non-infringing technology, which could require significant effort and expense and ultimately may not be successful. Furthermore, a successful claimant could secure a judgment or we may agree to a settlement that prevents us from licensing certain designs or performing certain services or that requires us to pay substantial damages, including treble damages if we are found to have willfully infringed the claimant's patents or copyrights, royalties or other fees. Any of these events could seriously harm our business, operating results and financial condition.

Our customer agreements include indemnity provisions and may expose us to substantial liability for intellectual property infringement and other losses.

Our customer agreements include indemnification provisions under which we agree to indemnify third parties for losses suffered or incurred as a result of claims of intellectual property infringement, damages caused by us to

property or persons, or other liabilities relating to or arising from our designs, services, or other contractual obligations. The term of these indemnity provisions generally survives termination or expiration of the applicable agreement. Large indemnity payments could harm our business, operating results and financial condition. We use highly specialized commercially available software pursuant to annual licenses, and the inability to renew any of these licenses could adversely affect our ability to design new RF filters and thus our potential for generating revenues.

## Table of Contents

In addition to our proprietary software, we also use highly specialized but commercially available computer software in our design process. We do not own this software and use it under the terms of licenses. These licenses are made available to us at prices and on terms generally available to any customer. If we were unable to renew any of these software licenses, we would have to locate or develop alternative software. We cannot assure you that suitable alternative software would be available on commercially reasonable terms or could be developed by us at reasonable cost. The loss of any one of these software licenses could adversely affect our ability to produce new RF filter designs and thus our potential for generating revenues.

Our limited operating history makes it difficult to evaluate our business and prospects and may increase the risks associated with your investment.

We have only a limited operating history upon which our business and future prospects may be evaluated. We have encountered and will continue to encounter risks and difficulties frequently experienced by companies in rapidly developing and changing industries, including challenges related to recruiting, integrating and retaining qualified employees; making effective use of our limited resources; achieving market acceptance of our existing and future solutions; competing against companies with greater financial and technical resources; and developing new solutions. Our current operational infrastructure may require changes for us to scale our business efficiently with additional technical personnel and effectively to keep pace with demand for our solutions, and achieve long-term profitability. If we fail to implement these changes on a timely basis or are unable to implement them effectively, our business may suffer. We cannot assure you that we will be successful in addressing these and other challenges we may face in the future. As a company in a rapidly evolving industry, our business prospects depend in large part on our ability to:

- build a reputation for a superior solution and create trust and long-term relationships with our customers;
- distinguish ourselves from competitors in our industry;
- develop and offer a competitive technology that meet our customers' needs as they change;
- respond to evolving industry standards and government regulations that impact our business;
- expand our business internationally; and
- attract, hire, integrate and retain qualified and motivated employees.

If we are unable to meet one or more of these objectives or otherwise adequately address the risks and difficulties that we face, our business may suffer, our revenue may decline and we may not be able to achieve growth or long-term profitability.

Our management team and financial reporting group is limited in size and experience which may impact the implementation and administration of financial and reporting controls and procedures.

Although our management team makes certain representations about the financial and reporting controls and procedures in our SEC filings, our management team has limited experience in implementing and maintaining our operations and our financial processes. Financial and reporting controls and procedures implemented and maintained by our management team, now or in the future, may not be adequate, with the result that there may be substantial deficiencies that will need remediation in the future. If there are inadequate controls and procedures, our financial statements and our reporting may be inaccurate or untimely.

The loss of the services of our key management and personnel or the failure to attract additional key personnel could adversely affect our ability to operate our business.

A loss of one or more of our current officers or key employees could severely and negatively impact our operations. We have no present intention of obtaining key-man life insurance on any of our executive officers or management. Additionally, competition for highly skilled technical, managerial and other personnel is intense. As our business develops, we might not be able to attract, hire, train, retain and motivate the highly skilled managers and employees we need to be successful. If we fail to attract and retain the necessary technical and managerial personnel, our business may not grow, may suffer and might fail.

We may have difficulty managing growth in our business.

Because of our small size, growth in accordance with our business plan, if achieved, will place a significant strain on our financial, technical, operational and management resources. As we expand our activities, there will be additional

demands on these resources. The failure to continue to upgrade our technical, administrative, operating and financial control systems or the occurrence of unexpected expansion difficulties, including issues relating to our research and development activities and retention of experienced scientists, managers and engineers, could have a material adverse effect on our business, financial

Table of Contents

condition and results of operations and our ability to timely execute our business plan. If we are unable to implement these actions in a timely manner, our results may be adversely affected.

Our worldwide operations are subject to political, legal and economic risks and natural disasters, which could have a material adverse effect on us.

Our customers are located around the world, including in the United States and Asia, and we expect that international sales will comprise a significant portion of total sales in the future. In addition, products utilizing our designs will be produced, assembled and tested at third-party manufacturing facilities located primarily in Asia. Consequently, we are subject to political, legal and economic risks associated with operations in foreign countries, including, without limitation:

- expropriation;
- changes in a specific country's or region's political or economic conditions;
- changes in tax laws, trade protection measures and import or export licensing requirements;
- difficulties in protecting our intellectual property;
- difficulties in managing staffing and exposure to different employment practices and labor laws;
- changes in foreign currency exchange rates;
- restrictions on transfers of funds and other assets of our subsidiaries between jurisdictions;
- changes in freight and interest rates;
- disruption in air transportation between the United States and overseas facilities;
- loss or modification of exemptions for taxes and tariffs; and
- compliance with U.S. laws and regulations related to international operations, including export control and economic sanctions laws and regulations and the Foreign Corrupt Practices Act.

In addition, our worldwide operations (or those of our business partners) could be subject to natural disasters such as earthquakes, tsunamis, flooding, typhoons and volcanic eruptions that disrupt manufacturing or other operations. For example, our Goleta and Burlingame operations are located near major earthquake fault lines in California. Any conflict or uncertainty in the countries in which we operate, including public health issues, safety issues, natural disasters, fire, disruptions of service from utilities, nuclear power plant accidents or general economic or political factors, could have a material adverse effect on our business. Any of the above risks, should they occur, could result in an increase in the cost of components, production delays, general business interruptions, delays from difficulties in obtaining export licenses for certain technology, tariffs and other barriers and restrictions, longer payment cycles, increased taxes, restrictions on the repatriation of funds and the burdens of complying with a variety of foreign laws, any of which could ultimately have a material adverse effect on our business.

Developments stemming from the recent change in the U.S. administration could adversely affect our business.

The Trump administration could implement changes in political, regulatory and economic laws, policies and conditions that could severely and negatively impact our business. The Trump administration has expressed doubt regarding existing trade agreements, such as the North American Free Trade Agreement (NAFTA), issued an executive order announcing the United States' withdrawal from the Trans-Pacific Partnership (TPP), and has raised the possibility of imposing tariffs on goods imported into the United States, including from China. Our customers are located around the world, and we expect that international sales will comprise a substantial portion of total sales in the future. In addition, we expect that products utilizing our designs will be produced, assembled and tested at third-party manufacturing facilities located primarily in Asia. Changes in U.S. political, regulatory and economic conditions or laws and policies governing U.S. tax laws, foreign trade, manufacturing, and development and investment in the countries where we or our customers operate could adversely affect our operating results and our business.

If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our operating results could fall below the expectations of securities analysts and investors, resulting in a decline in our stock price.

The preparation of financial statements in conformity with generally accepted accounting principles, or GAAP, requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions



that we believe to be reasonable under the circumstances, as provided in Item 7--Management's Discussion and Analysis of Financial Condition and Results of Operations, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. Our operating results may be adversely affected if our assumptions change or if actual circumstances differ from those in our assumptions, which could cause our operating results to fall below the expectations of securities analysts and investors, resulting in a decline in our stock price. Significant assumptions and estimates used in preparing our consolidated financial statements include those related to the fair values of equity instruments, other financial instruments and income taxes.

## Table of Contents

Security breaches and improper access to or disclosure of our proprietary information, or other hacking attacks on our systems, could adversely affect our business.

Our industry is prone to cyber-attacks, with third parties seeking unauthorized access to our proprietary information and technology. Computer malware, viruses, and hacking and phishing attacks by third parties have become more prevalent in our industry and may occur on our systems in the future. We believe such attempts are increasing in number and in technical sophistication, and in some instances we may be unable to anticipate these techniques or to implement adequate preventative measures. Additionally, we may be unaware of an incident or its magnitude and effects. Although we have developed systems and processes that are designed to protect our proprietary information and to prevent other cybersecurity breaches, we cannot guarantee that such measures will provide absolute security. Any failure to prevent or mitigate security breaches and improper access to or disclosure of our proprietary information could result in the loss or misuse of such proprietary information, which could harm our business and diminish our competitive position. Such attacks may also create system disruptions or cause shutdowns. Publicity about vulnerabilities and attempted or successful incursions could damage our reputation with customers and reduce demand for our products and services.

Affected private parties or government authorities could initiate legal or regulatory actions against us in connection with any security breaches, which could cause us to incur significant expense and liability or result in orders or consent decrees forcing us to modify our business practices. Any of these events could have a material and adverse effect on our business, reputation, and operating results.

Changes in current laws or regulations or the imposition of new laws or regulations could impede the license of our designs or otherwise harm our business.

Wireless networks can only operate in the frequency bands, or spectrum, allowed by regulators and in accordance with rules governing how the spectrum can be used. The Federal Communications Commission, or the FCC, in the United States, as well as regulators in foreign countries, have broad jurisdiction over the allocation of frequency bands for wireless networks. We therefore will rely on the FCC and international regulators to provide sufficient spectrum and usage rules. For example, countries such as China, Japan or Korea heavily regulate all aspects of their wireless communication industries, and may restrict spectrum allocation or usage. If this were to occur, it would make it difficult for us to license our designs for use in mobile devices in that region.

If we choose to acquire new businesses, products or technologies, we may experience difficulty in the identification or integration of any such acquisition, and our business may suffer.

Our commercial success depends on our ability to continually enhance and broaden our product offerings in response to changing customer demands, competitive pressures and technologies. Accordingly, we may in the future pursue the acquisition of complementary businesses, products or technologies instead of developing them ourselves. We do not know if we will be able to identify or complete any future acquisitions, or whether we will be able to successfully integrate any acquired business, product or technology or retain key employees. Integrating any business, product or technology we acquire could be expensive and time consuming, disrupt our ongoing business and distract our management. Moreover, we may fail to realize the anticipated benefits of any acquisition. If we are unable to integrate any acquired businesses, products or technologies effectively, our business will suffer. In addition, any amortization or charges resulting from acquisitions could adversely affect our operating results.

### **Risks Relating to the Securities Markets and Ownership of Our Common Stock**

A securities class action lawsuit and shareholder derivative lawsuit are pending against us and could have a material adverse effect on our business, results of operations and financial condition.

A putative class action lawsuit and shareholder derivative lawsuit are pending against us and certain of our directors and officers, as described in Item 3--Legal Proceedings. These lawsuits may divert financial and management resources that would otherwise be used to benefit our operations. Although we deny the material allegations in the lawsuits and intends to defend ourselves vigorously, defending the lawsuits could result in substantial costs. No assurances can be given that the results of these matters will be favorable to us. An adverse resolution of any of these lawsuits could have a material adverse effect on our results of operations and financial condition. In addition, we may be the target of securities-related litigation in the future, both related and unrelated to the existing class action and shareholder derivative lawsuits. Such litigation could divert our management's attention and resources, result in

substantial costs, and have an adverse effect on our business, results of operations and financial condition.

21

---

Table of Contents

We maintain director and officer insurance that we regard as reasonably adequate to protect us from potential claims; however, we cannot assure you that it will. Further, as a result of the pending litigation the costs of insurance may increase and the availability of coverage may decrease. As a result, we may not be able to maintain our current levels of insurance at a reasonable cost, or at all, which might make it more difficult to attract qualified candidates to serve as executive officers or directors of Resonant.

The price of our common stock may be volatile and the value of your investment could decline

Technology stocks have historically experienced high levels of volatility. The trading price of our common stock may fluctuate substantially, depending on many factors, some of which are beyond our control and may not be related to our operating performance. These fluctuations could cause you to lose all or part of your investment in our common stock. Factors that could cause fluctuations in the trading price of our common stock include, but are not limited to, the following:

- the progress, completion or failure of efforts to design our commercial products;
- a customer decision regarding incorporation of our designs into a commercial product;
- the loss of any customer relationship;
- the addition of a new customer relationship;
- mergers and acquisitions involving us, our customers or our competitors;
- price and volume fluctuations in the overall stock market from time to time;
- significant volatility in the market price and trading volume of technology companies in general;
- fluctuations in the trading volume of our shares or the size of our public float;
- actual or anticipated changes or fluctuations in our results of operations;
- whether our results of operations meet the expectations of securities analysts or investors;
- actual or anticipated changes in the expectations of investors or securities analysts;
- litigation involving us, our industry, or both;
- regulatory developments in the United States, foreign countries, or both;
- general economic conditions and trends;
- major catastrophic events;
- lockup releases, sales of large blocks of our common stock;
- departures of key employees; or
- an adverse impact on the company from any of the other risks cited herein.

In addition, if the market for technology stocks or the stock market in general, experience a loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business, results of operations or financial condition. The trading price of our common stock might also decline in reaction to events that affect other companies in our industry even if these events do not directly affect us. Securities class action litigation has often been instituted against companies following periods of volatility in the overall market and in the market price of a company's securities. Two putative class action lawsuits were filed in March 2015 against the Company and certain of our members of the Board of Directors and executives, as described in Item 3--Legal Proceedings. In addition, we may be the target of securities-related litigation in the future, both related and unrelated to the existing class action lawsuits. Such litigation could divert our management's attention and resources, result in substantial costs, and have an adverse effect on our business, results of operations and financial condition.

Insiders have substantial control over us, which could limit your ability to influence the outcome of key transactions, including a change of control.

Our directors, executive officers and each of our stockholders who own greater than 5% of our outstanding common stock, in the aggregate, beneficially own approximately 31.5% of the outstanding shares of our common stock as of December 31, 2016. As a result, these stockholders will be able to influence or control matters requiring approval by our stockholders, including the election of directors and the approval of mergers, acquisitions or other extraordinary transactions. They may also have interests that differ from yours and may vote in a manner that is adverse to your interests. This concentration of ownership may have the effect of deterring, delaying or preventing a change of control of our company, could deprive our stockholders of an opportunity to receive a premium for their common stock as

part of a sale of our company and might ultimately affect the market price of our common stock. The requirements of being a public company may strain our resources, divert our management's attention and affect our ability to attract and retain qualified board members.

Table of Contents

As a public company, we are subject to the reporting requirements of the Exchange Act, and are required to comply with the applicable requirements of the Sarbanes-Oxley Act and the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of The NASDAQ Stock Market and other applicable securities rules and regulations. Compliance with these rules and regulations have increased our legal and financial compliance costs, made some activities more difficult, time-consuming or costly and increased demand on our systems and resources. Among other things, the Exchange Act requires that we file annual, quarterly and current reports with respect to our business and results of operations and maintain effective disclosure controls and procedures and internal controls over financial reporting. In order to maintain and, if required, improve our disclosure controls and procedures and internal controls over financial reporting to meet this standard, significant resources and management oversight may be required. As a result, management's attention may be diverted from other business concerns, which could harm our business and results of operations. Although we have already hired additional employees to comply with these requirements, we may need to hire even more employees or retain professional service providers in the future, which will increase our costs and expenses.

In addition, we expect that these new rules and regulations will make it more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. These factors could also make it more difficult for us to attract and retain qualified members of our board of directors, particularly to serve on our audit committee and compensation committee, and qualified executive officers.

We are an "emerging growth company," and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our common stock less attractive to investors.

For so long as we remain an "emerging growth company" as defined in the JOBS Act, we may take advantage of certain exemptions from various requirements that are applicable to public companies that are not "emerging growth companies," including not being required to comply with the independent auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We may take advantage of these exemptions for so long as we are an "emerging growth company," which could be as long as five years following the completion of our initial public offering. Investors may find our common stock less attractive because we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock, and our stock price may be more volatile and may decline.

In addition, Section 107 of the JOBS Act also provides that an "emerging growth company" can take advantage of an extended transition period for complying with new or revised accounting standards. However, we chose to "opt out" of such extended transition period, and as a result, we will comply with new or revised accounting standards on the relevant dates adoption of such standards is required for non-emerging growth companies. Our decision to opt out of the extended transition period for complying with new or revised accounting standards is irrevocable.

We will remain an emerging growth company until the earliest of (a) the last day of our fiscal year during which we have total annual gross revenue of at least \$1.0 billion; (b) the last day of our fiscal year following the fifth anniversary of the completion of our initial public offering; (c) the date on which we have, during the previous three-year period, issued more than \$1.0 billion in non-convertible debt; or (d) the date on which we are deemed to be a "large accelerated filer" under the Securities Exchange Act of 1934, as amended, which would occur if the market value of our stock that are held by non-affiliates exceeds \$700 million as of the last business day of our most recently completed second fiscal quarter. Once we cease to be an emerging growth company, we will not be entitled to the exemptions provided in the JOBS Act.

We are required to evaluate our internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act of 2002, and any adverse results from such evaluation could result in a loss of investor confidence in our financial reports and have an adverse effect on our stock price.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, we are required to furnish a report by our management on our internal control over financial reporting. Such report contains, among other matters, an assessment of the

effectiveness of our internal control over financial reporting as of the end of our fiscal year, including a statement as to whether or not our internal control over financial reporting is effective. This assessment must include disclosure of any material weaknesses in our internal control over financial reporting identified by management. If we are unable to assert that our internal control over financial reporting is effective, we could lose investor confidence in the accuracy and completeness of our financial reports, which could have an adverse effect on our stock price.

Table of Contents

Our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal control over financial reporting until the later of the date we are an accelerated filer or large accelerated filer, or the date we are no longer an “emerging growth company.” At such time, our independent registered public accounting firm may issue a report that is adverse in the event it is not satisfied with the level at which our controls are documented, designed or operating. Our remediation efforts may not enable us to avoid a material weakness in the future.

If securities or industry analysts do not publish research or reports about our business, or publish inaccurate or unfavorable research reports about our business, our share price and trading volume could decline.

The trading market for our common stock will, to some extent, depend on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If one or more of the analysts who cover us should downgrade our shares or change their opinion of our business prospects, our share price would likely decline. If one or more of these analysts ceases coverage of our company or fails to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

We do not intend to pay dividends for the foreseeable future and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We have never declared or paid any dividends on our common stock. We intend to retain any earnings to finance the operation and expansion of our business, and we do not anticipate paying any cash dividends in the future. As a result, you may only receive a return on your investment in our common stock if the market price of our common stock increases.

Our charter documents and Delaware law could discourage takeover attempts and lead to management entrenchment. Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could delay or prevent a change in control of our company. These provisions could also make it difficult for stockholders to elect directors that are not nominated by the current members of our board of directors or take other corporate actions, including effecting changes in our management. These provisions include:

- the ability of our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by the chairman of our board of directors, the chief executive officer, the president (in the absence of a chief executive officer) or a majority vote of our board of directors, which could delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- the requirement for the affirmative vote of holders of at least 66-2/3% of the voting power of all of the then-outstanding shares of the voting stock, voting together as a single class, to amend the provisions of our amended and restated certificate of incorporation relating to the management of our business or our amended and restated bylaws, which may inhibit the ability of an acquirer to effect such amendments to facilitate an unsolicited takeover attempt;
- the ability of our board of directors, by majority vote, to amend our amended and restated bylaws, which may allow our board of directors to take additional actions to prevent an unsolicited takeover and inhibit the ability of an acquirer to amend our amended and restated bylaws to facilitate an unsolicited takeover attempt; and
- advance notice procedures with which stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders’ meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer’s own slate of directors or otherwise attempting to obtain control of us.



In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time.

Risks Related to Government Regulation

24

---

Table of Contents

Our failure to comply with U.S. laws and regulations relating to the export and import of goods, technology, and software could subject us to penalties and other sanctions and restrict our ability to license and develop our filter designs.

We are obligated by law to comply with all U.S. laws and regulations governing the export and import of goods, technology, and services, including the International Traffic in Arms Regulations, or ITAR, the Export Administration Regulations, or EAR, regulations administered by the Department of Treasury's Office of Foreign Assets Control, and regulations administered by the Bureau of Alcohol Tobacco Firearms and Explosives governing the importation of items on the U.S. Munitions Import List. Pursuant to these regulations, we are responsible for determining the proper licensing jurisdiction and export classification of our filter designs, and obtaining all necessary licenses or other approvals, if required, for exports and imports of technical data, and software, or for the provision of technical assistance or other defense services to or on behalf of foreign persons. We are also required to obtain export licenses, if required, before employing or otherwise utilizing foreign persons in the performance of our contracts if the foreign person will have access to export-controlled technical data or software. The violation of any of the applicable laws and regulations could subject us to administrative, civil, and criminal penalties.

These regulations could restrict our ability to license existing filter designs and develop new designs. For example, as a result of ITAR requirements, we are unable to supply certain products to China satellite companies or end users, which comprise a significant part of the overall satellite market. Changes in our designs or changes in export and import regulations may create delays in the introduction of our designs in international markets, prevent our customers with international operations from deploying products incorporating our designs throughout their global systems or, in some cases, prevent the export or import of product including our designs to certain countries altogether. Any change in export or import regulations or related legislation, shift in approach to the enforcement or scope of existing regulations, or change in the countries, persons, or technologies targeted by such regulations, could result in decreased use of our designs by, or our ability to export or license our designs to, existing or potential customers with international operations and decreased revenue. Additionally, failure to comply with these laws could result in sanctions by the U.S. government, including substantial monetary penalties, denial of export privileges, and debarment from government contracts.

If we fail to comply with anti-bribery laws, including the U.S. Foreign Corrupt Practices Act, or FCPA, we could be subject to civil and/or criminal penalties.

As a result of our international operations, we may be subject to anti-bribery laws, including the FCPA, which prohibits companies from making improper payments to foreign officials for the purpose of obtaining or keeping business. If we fail to comply with these laws, the U.S. Department of Justice, the Securities and Exchange Commission, or SEC, or other U.S. or foreign governmental authorities could seek civil and/or criminal sanctions, including monetary fines and penalties against us or our employees, as well as additional changes to our business practices and compliance programs, which could have a material adverse effect on our business, results of operations, or financial condition

Table of Contents

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We maintain our principal office, totaling approximately 9,000 square feet of office and laboratory space, in Goleta, California under a lease that expires in July 2018 and provides us with an option for an additional year. We lease an additional 5,250 square feet of office space in Burlingame, California under a lease that expires in January 2022 and provides us with an option for an additional two years. This facility is used by members of our technical team resident in the San Francisco Bay area. We believe our current facilities are sufficient for our current operations, and that suitable additional space will be available to accommodate our planned growth.

ITEM 3. LEGAL PROCEEDINGS

Beginning on March 17, 2015, three putative class action lawsuits were filed in the United States District Court for the Central District of California, naming us, Terry Lingren and John Philpott as defendants. The three lawsuits were consolidated into a single putative class action, In re Resonant Inc. Securities Litigation, Case No. 15-cv-01970 SJO (MRWx), and the court appointed co-lead plaintiffs. On September 26, 2015, the plaintiffs filed a consolidated amended complaint purporting to assert claims under the federal securities laws against us, Terry Lingren, John Philpott, and the underwriter of our May 29, 2014 IPO. On February 8, 2016, the court granted our motion to dismiss with leave to amend. On February 23, 2016, the plaintiffs filed a consolidated second amended complaint, in which plaintiffs purport to be acting on behalf of a class consisting of purchasers or acquirers of our common stock between November 6, 2014 and April 2, 2015, as well as a class of persons or entities who purchased or acquired our shares in (or traceable to) our IPO. The plaintiffs alleged that, as a result of the defendants' allegedly false and/or misleading statements and/or omissions concerning our business, operations, prospects and performance, our common stock traded at artificially inflated prices between November 6, 2014 and April 2, 2015. On July 11, 2016, the court entered an order granting in part and denying in part our motion to dismiss the consolidated second amended complaint. The court granted our motion to dismiss with respect to plaintiffs' claims under Section 11 of the Securities Act of 1933 and Section 20(a) of the Securities Exchange Act of 1934. The court also granted our motion to dismiss plaintiffs' claims under Section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder to the extent those claims are premised on alleged misstatements made on February 26, 2015. The court denied our motion to dismiss with respect to plaintiffs' claims under Section 15 of the Securities Act of 1933, and with respect to plaintiffs' claims under Section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder to the extent those claims are premised on alleged misstatements made in November and December of 2014 and January of 2015. As a result of the court's order, there are no remaining claims pending against the underwriter of our May 29, 2014 IPO. On October 26, 2016, the court issued an order clarifying its July 11, 2016 order on our motion to dismiss, making clear that the court's actual intent was to grant the motion to dismiss with respect to the claims under Section 15 of the Securities Act of 1933, while denying the motion to dismiss with respect to the claims under Section 20(a) of the Securities Exchange Act of 1934. We filed our answer to plaintiffs' second consolidated amended complaint on August 12, 2016. The court has set a trial date of September 19, 2017.

The parties have reached an agreement in principle to settle the putative class action. The settlement is in the process of being documented so that it may be presented to the court for approval. We can make no assurances that the settlement will be consummated or that the court will approve it.

On September 24, 2015, a purported shareholder derivative action was filed in the United States District Court for the Central District of California, and is pending before the same federal district court judge to whom the putative class action has been assigned. In the derivative action, the plaintiffs allege that certain of our officers and directors breached their fiduciary duties to us, including by allegedly violating the federal securities laws and exposing us to possible financial liability. On November 16, 2015, the court entered an order staying the proceedings in the shareholder derivative action pending certain further developments. The court has set a status conference to take place on May 1, 2017.

We intend to continue to defend ourselves vigorously in these actions.

We are not party to any other legal proceedings. We may, from time to time, be party to litigation and subject to claims incident to the ordinary course of business. As our growth continues, we may become party to an increasing number of litigation matters and claims. The outcome of litigation and claims cannot be predicted with certainty, and the resolution of any future matters could materially affect our future financial position, results of operations or cash flows.

ITEM 4. MINE SAFETY DISCLOSURES  
Not applicable.

27

---

Table of Contents

## PART II

## ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

## Market Information for Common Stock

Our common stock is listed on the NASDAQ Capital Market under the symbol 'RESN'. The following table sets forth for the periods indicated the high and low sale prices per share of our common stock as reported on the NASDAQ Capital Market:

	High	Low
Fiscal 2015		
First Quarter	\$19.86	\$7.05
Second Quarter	\$7.52	\$2.84
Third Quarter	\$5.75	\$1.93
Fourth Quarter	\$4.84	\$2.51
Fiscal 2016		
First Quarter	\$3.50	\$1.69
Second Quarter	\$5.10	\$2.50
Third Quarter	\$6.76	\$4.01
Fourth Quarter	\$5.65	\$4.25

On March 29, 2017, the last reported sale price of our common stock on the NASDAQ Capital Market was \$4.74 per share.

## Holders of Record

As of December 31, 2016, we had 90 holders of record of our common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

## Dividend Policy

We have never declared or paid cash dividends on our common stock. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our common stock in the foreseeable future, if at all. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

## Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

## Recent Sale of Unregistered Securities

None.

## Use of Proceeds

Not applicable.

Table of Contents

ITEM 6.                   SELECTED FINANCIAL DATA  
Not applicable.

29

---

Table of Contents

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with the consolidated financial statements and the related notes to the consolidated financial statements included later in this Annual Report on Form 10-K. In addition to historical financial information, the following discussion contains forward-looking statements that reflect our plans, estimates, beliefs and expectations that involve risks and uncertainties. Our actual results and the timing of events could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in "Risk Factors" and "Special Note Regarding Forward-Looking Statements."

Overview

Resonant is a late-stage development company that is creating an innovative software, intellectual property, or IP, and services platform that has the ability to increase designer efficiency, reduce the time to market and lower unit costs in the designs of filters for radio frequency, or RF, front-ends for the mobile device industry. The RF front-end, or RFFE, is the circuitry in a mobile device responsible for analog signal processing and is located between the device's antenna and its digital baseband. The platform we are developing is based on fundamentally new technology that we call Infinite Synthesized Networks®, or ISN®, to configure and connect resonators, the building blocks of RF filters. Filters are a critical component of the RF front-end used to select desired radio frequency signals and reject unwanted signals. Our ISN® platform allows us to develop unique, custom designs that address the increasing complexity of the RFFE due to carrier aggregation, or CA, by both reducing the size of the filter and improving performance. Our goal is to utilize our ISN® platform to support our customers in reducing their time to develop complex filter designs, to access new classes of filter designs, and to do it more cost effectively.

Our inception date is May 29, 2012. We commenced business on July 6, 2012 and completed our initial public offering, or IPO, on May 29, 2014.

We are validating and commercializing our technology through the creation of filter designs that address the problems in the high growth RFFE industry created by the growing number of frequency bands in mobile devices. The worldwide adoption of Long Term Evolution (LTE) as the global standard, and the use of mobile devices to access the Internet, has resulted in massive proliferation of frequency bands which, when combined with CA for higher data rates and MIMO, has resulted in an ever-increasing number and complexity of filters in the RFFE. We are developing a series of single-band surface acoustic wave, or SAW, filter designs for frequency bands presently dominated by larger and more expensive bulk acoustic wave, or BAW, filters. We are also developing multiplexer filter designs for two or more bands to address the CA requirements of our customers. Finally, we are developing unique filter designs, enabled by ISN®, to replace multiple filters and associated componentry for many bands, with higher performance. In order to succeed, we must convince RF front-end suppliers that our filter designs can significantly reduce the size and cost of their products.

We continue to make progress in the development of our technology in all areas of RF filter design. During 2016, we successfully engaged and contracted developments with six separate customers for greater than 25 distinct filter designs. Our typical customer engagement process begins with the execution of a joint development agreement, or JDA, which provides for a development cycle of six to nine months, following which we enter into a license agreement for specific bands. We estimate that initial shipments of products to original equipment manufacturers, or OEMs, will occur within nine to twelve months following execution of a license agreement, which shipments could in turn generate royalty revenues. The primary elements of these agreements provide for upfront design fees and royalty payments for each unit sold using our filter designs and typically should last for a minimum of two years after commercialization and in many cases for the life of the design.

Our current customer contracts, leveraging our ISN® platform, include the development of complex designs ranging from sophisticated WiFi co-existence filters, to high frequency duplexers and quadplexers. In addition to these discrete solutions we also were engaged to design a number of filters specifically targeted to module integration. Discrete filters and filters targeting module integration require different packaging (wafer level packaging rather than chip scale packaging).



During the fourth quarter of 2016, one of our customers shipped pre-production parts under an initial licensing agreement executed in May 2016, which covers three high volume SAW duplexers, which were designed utilizing our ISN® platform. The royalty from these initial shipments will be modest, however the importance of this activity is that our design was used to create sample pre-production parts that were shipped to an original equipment manufacturer, OEM.

In July 2016, we acquired GVR Trade S.A., or GVR, by purchasing all of the issued and outstanding capital stock of GVR for a purchase price of approximately \$1.2 million consisting of \$661,000 in cash and 125,000 shares of our common stock. GVR is a Swiss-based company specializing in the consultation and design of SAW and BAW devices. We believe the acquisition is a logical extension to the existing long-term cooperation between our two companies and will further expand our

Table of Contents

ability to support licensing agreements for both current and future partners and customers. GVR is now a wholly owned direct subsidiary of Resonant.

We believe licensing our designs is the most direct and effective means of validating our ISN<sup>®</sup> platform and related IP libraries to address this rapidly growing market. Our target customers make part or all of the RF front-end. We intend to retain ownership of our designs, and we expect to be compensated through license fees and royalties based on sales of RF front-end filters that incorporate our designs. We currently do not intend to manufacture or sell any physical products or operate as a contract design company developing designs for a fee.

We anticipate a significant delay between the start of a design and the start of royalty payments under a particular license. In some cases, we may grant the customer a limited period of exclusivity on a specific design or frequency band to enable the customer to be the first to market with the design. We do not expect any of these exclusivity provisions to have any long-term duration nor prevent us from concurrently working on filter designs in other bands for other customers.

We plan to continue to pursue filter design projects with existing and potential customers and other strategic partners. These types of arrangements may subsidize the expansion of our IP libraries and further the development of our ISN<sup>®</sup> platform, as well as offer complementary technology and market intelligence. We also intend to investigate the potential of licensing part or all of our ISN<sup>®</sup> software design suite to potential customers in the RFFE industry.

However, we intend to retain ownership of our technology, software, designs and related improvements. Our goal is to establish and leverage alliances with new and existing customers, who will help grow the market for our designs by integrating them with their own proprietary technology and products, or by using our software products for their own designs, thus combining their own particular strengths with ours to provide an extensive array of solutions.

We are using the net proceeds from our financings for product development to commercialize our technology, research and development, the development of our patent strategy and expansion of our patent portfolio, maturing and commercializing our ISN<sup>®</sup> tools, as well as for working capital and other general corporate purposes. Our costs include employee salaries and benefits, compensation paid to consultants, capital costs for research and other equipment, costs associated with development activities including travel and administration, legal expenses, sales and marketing costs, general and administrative expenses, and other costs associated with a late-stage, publicly-traded technology company. However, our costs are dependent on the nature of our development efforts and our success in commercialization. We anticipate adding employees for research and development, as well as general and administrative functions, to support our efforts. We expect to incur consulting expenses related to technology development and other efforts as well as legal and related expenses to protect our intellectual property.

The amounts that we actually spend for any specific purpose may vary significantly and will depend on a number of factors including, but not limited to, our expected cash resources, the pace of progress of our commercialization and development efforts, actual needs with respect to product testing, development and research, market conditions, and changes in or revisions to our marketing strategies. In addition, we may invest in complementary products, technologies or businesses.

We have earned minimal revenues since inception, and our operations have been funded with initial capital contributions and proceeds from the sale of equity securities and debt. We have incurred accumulated losses totaling \$46.2 million from inception through December 31, 2016. Our losses are primarily the result of research and development costs associated with commercializing our technology, combined with start-up and operating costs including those related to financings and being a public company. We expect to continue to incur substantial costs for commercialization of our technology on a continuous basis because our business model involves developing and licensing custom filter designs.

Our consolidated financial statements account for the continuation of our business as a going concern. We are subject to the risks and uncertainties associated with a new business. Our principal source of liquidity as of December 31, 2016 consists of existing cash and cash equivalents and investment balances of \$9.8 million. In the fourth quarter of 2016, we used approximately \$2.9 million in cash and investments. Due to these conditions, substantial doubt exists as to our ability to continue as a going concern. In February, 2017 we raised an additional \$7.5 million through a private placement of common stock and warrants. After evaluation of these conditions and events, we believe our current resources will provide sufficient funding for planned operations into 2018. If necessary, we will seek to raise

additional capital from the sale of equity securities or the incurrence of indebtedness to allow us to continue operations. There can be no assurance that additional financing will be available to us on acceptable terms, or at all. Additionally, if we issue additional equity securities to raise funds, whether to existing investors or others, the ownership percentage of our existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Additionally, we may be limited as to the amount of funds we can raise pursuant to SEC rules and the continued listing requirements of NASDAQ. If we cannot raise needed funds, we might be forced to make substantial reductions in our operating expenses, which could adversely affect our ability to implement our business plan and ultimately our viability as a company. These consolidated financial statements

## Table of Contents

do not include any adjustments relating to the recoverability and classification of recorded asset amounts or amounts and classification of liabilities that might result from this uncertainty.

### Results of Operations

#### Comparison of the Years Ended December 31, 2015 and 2016

**Revenues.** Revenues consist of the recognized portion of amounts received from customers for the development of our filter designs. These amounts consist of upfront payments intended to support our initial engineering product development efforts and milestone payments based on the achievement of specific milestones specified within our contracts. The revenues related to upfront payments are recognized ratably over the estimated development period associated with that upfront payment. For the year ended December 31, 2016, we recognized \$246,000 of revenues related to upfront payments in connection with customer contracts, \$45,000 of revenues related to the achievement of milestones and \$11,000 of other revenues. Additionally, revenue for the year ended December 31, 2016 included \$61,000 of revenue recognized by our subsidiary, GVR. There were no revenues recognized for the year ended December 31, 2015. We expect revenues to continue to be recorded due to the \$325,000 of deferred revenue we have recorded as of December 31, 2016. We also believe that based on the potential future milestone payments and royalties from our license agreements, there may be future revenues recorded.

**Research and Development.** Research and development expenses consist of the direct engineering and other costs associated with the development and commercialization of our technology, including the development of filter designs for our customers. These consist primarily of the cost of employees and consultants, including stock-based compensation, and to a lesser extent costs for equipment, software and supplies. We also include the costs for our intellectual property development program under research and development. This program focuses on patent strategy and invention identification.

Research and development expenses increased \$2.1 million from \$4.3 million in 2015 to \$6.4 million in 2016. The increase was primarily the result of the increased payroll, benefit costs, consulting costs, travel and development costs related to increased activity on our various filter designs under development. Additionally, research and development expenses for the year ended December 31, 2016 include \$146,000 of expenses related to our subsidiary, GVR. There were no such expenses in 2015. We have expanded our research and development employees from 17 as of the end of 2015 to 26 employees as of December 31, 2016.

**General and Administrative Expenses.** General and administrative expenses include salaries, stock-based compensation, taxes and employee benefits for the executives and administrative staff. It also includes expenses for corporate overhead such as rent for our facilities, travel expenses, telecommunications, investor relations, insurance, professional fees and business consulting fees.

General and administrative expenses increased \$3.5 million, from \$4.9 million in 2015 to \$8.5 million in 2016. The increase was due primarily to the cost associated with the hiring of two executives, travel expenses associated with business development efforts and increased legal fees in connection with legal proceedings. Also, during 2016 we incurred \$295,000 of senior executive transition costs and \$92,000 of business acquisition costs. We anticipate that our general and administrative expenses will likely continue to increase as a result of planned growth.

**Depreciation and Amortization Expense.** Depreciation and amortization expense increased by \$203,000 from \$491,000 in 2015 to \$694,000 in 2016 primarily as a result of our increase in fixed assets and new equipment and software associated with the increase in employees and our product development efforts. Additionally, depreciation expense for the year ended December 31, 2016 included \$52,000 of depreciation and amortization related to the tangible and intangible assets of our subsidiary, GVR. There were no such expenses for the year ended December 31, 2015.

**Interest Income.** Interest income decreased by \$5,000 from \$27,000 in 2015 to \$22,000 in 2016 primarily due to decreased cash and investment balances. We expect interest income to fluctuate in proportion to our cash and investment balances.

**Income Taxes.** We have earned minimal revenues and are currently operating at a loss. Consequently, our only tax liabilities for both periods were for minimum taxes in the States where we conduct business.

### Liquidity and Capital Resources

Financing Activities

We have earned minimal revenues since inception. Our operations have been funded with initial capital contributions and proceeds from the sale of equity securities and debt.

32

---

## Table of Contents

As of December 31, 2016, we have raised aggregate gross proceeds of \$45.6 million through the use of loans, convertible debt and equity through an IPO, private placement financing and secondary offering of our common stock. We had current assets of \$10.0 million and current liabilities of \$3.0 million at December 31, 2016, resulting in working capital of \$7.0 million. This compares to working capital of \$4.5 million at December 31, 2015. The change in working capital is primarily the result of the cash provided by financing activities offset by use of cash in our normal business operations.

Our consolidated financial statements account for the continuation of our business as a going concern. We are subject to the risks and uncertainties associated with a new business. Our principal source of liquidity as of December 31, 2016 consists of existing cash and cash equivalents and investment balances of \$9.8 million. In the fourth quarter of 2016, we used approximately \$2.9 million in cash and investments. Due to these conditions, substantial doubt exists as to our ability to continue as a going concern. In February, 2017 we raised an additional \$7.5 million through a private placement of common stock and warrants. After evaluation of these conditions and events, we believe our current resources will provide sufficient funding for planned operations into 2018. If necessary, we will seek to raise additional capital from the sale of equity securities or the incurrence of indebtedness to allow us to continue operations. There can be no assurance that additional financing will be available to us on acceptable terms, or at all. Additionally, if we issue additional equity securities to raise funds, whether to existing investors or others, the ownership percentage of our existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Additionally, we may be limited as to the amount of funds we can raise pursuant to SEC rules and the continued listing requirements of NASDAQ. If we cannot raise needed funds, we might be forced to make substantial reductions in our operating expenses, which could adversely affect our ability to implement our business plan and ultimately our viability as a company. These consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or amounts and classification of liabilities that might result from this uncertainty.

We have a Form S-3 universal shelf registration statement on file with the SEC. The universal shelf registration statement on Form S-3 permits us to sell, in one or more public offerings, shares of our common stock, shares of preferred stock or debt securities, or any combination of such securities and warrants to purchase securities, for proceeds in an aggregate amount of up to \$35.0 million, subject to limitations on the amount of securities we may sell in any twelve-month period. As of December 31, 2016, we have raised a total of \$11.5 million of gross proceeds from the sale of 2,715,000 shares of our common stock, leaving approximately \$23.5 million of securities available for the issuance pursuant to the Form S-3. The Form S-3 will expire in May 2019.

### Cash Flow Analysis

Operating activities used cash of \$7.4 million in 2015 and \$10.7 million in 2016. The increase is primarily the result of increased payroll-related and travel costs associated with the increase in headcount as we have expanded our product development, business development and sales and marketing efforts. The increase is also due to senior executive transition costs and legal costs associated with our legal proceedings.

Investing activities provided cash of \$4.2 million in 2015 and used cash of \$2.8 million in 2016. The cash provided in 2015 was primarily a result of the net redemptions of investments held to maturity offset by the purchase of \$100,000 related to the restricted cash commitment attributable to our corporate credit cards, capital expenditures and our investment in patents. The cash used in 2016 was a result of the net purchases of investments using cash acquired through the sale of equity, purchases of property and equipment, expenditures for patents, and the acquisition of GVR. Financing activities used cash of \$45,000 in 2015 and provided cash of \$16.1 million in 2016. For the 2015 period, cash used was a result of the payment of tax withholdings on the net issuance of common stock for compensation. There were no such transactions for 2016 as we no longer issue net shares on the issuance of common stock for compensation. The cash provided in 2016 was the result of the net proceeds from the sale of equity securities in our private placement financing in April 2016 and underwritten public offering in September 2016.

### Off-Balance Sheet Transactions

We do not have any off-balance sheet arrangements.

Contractual Obligations and Known Future Cash Requirements

Indemnification Agreements

33

---

Table of Contents

In the ordinary course of business, we may enter into agreements of varying scope and terms pursuant to which we agree to indemnify customers, vendors, lessors, business partners and other parties with respect to certain matters, including, but not limited to, losses arising out of breach of such agreements, services to be provided by us or from intellectual property infringement claims made by third parties. In addition, we have entered into indemnification agreements with directors and certain officers and employees that will require us, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers or employees. We are currently indemnifying pursuant to these arrangements, certain of our officers and directors and the underwriter of our IPO against claims asserted in the putative securities class action lawsuit and related purported shareholder derivative action filed in the United States District Court for the Central District of California, discussed in Part I, Item 3, "Legal Proceedings," of this Annual Report on Form 10-K. No other demands have been made upon us to provide indemnification under such agreements and there are no other claims that we are aware of that could have a material effect on our consolidated balance sheets, consolidated statements of comprehensive loss, consolidated statements of stockholders' equity or consolidated statements of cash flows.

Operating Leases

We lease various office facilities, including our corporate headquarters in Goleta, California and our office in Burlingame, California, under operating lease agreements. The terms of the lease agreements provide for rental payments on a graduated basis. We recognize rent expense on a straight-line basis over the lease periods.

Commitments

As of December 31, 2016, our principal commitments consisted of obligations under the operating leases for our offices. The following table summarizes our future minimum payments under these arrangements as of December 31, 2016:

Contractual Obligations	Payments Due by Period				
	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Operating lease commitments	\$1,485,000	\$461,000	\$563,000	\$442,000	\$19,000

Critical Accounting Policies and Estimates

Our discussion and analysis of financial condition and results of operations is based upon our consolidated financial statements, which have been prepared in conformity with accounting principles generally accepted in the United States of America. Certain accounting policies and estimates are particularly important to the understanding of our financial position and results of operations and require the application of significant judgment by our management or can be materially affected by changes from period to period in economic factors or conditions that are outside of our control. As a result, they are subject to an inherent degree of uncertainty. In applying these policies, our management uses their judgment to determine the appropriate assumptions to be used in the determination of certain estimates. Those estimates are based on our historical operations, our future business plans and projected financial results, the terms of existing contracts, our observance of trends in the industry, information provided by our customers and information available from other outside sources, as appropriate. While our significant accounting policies are described in the notes to our consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K, we believe that the following critical accounting policies are most important to understanding and evaluating our reported financial results.

**Investments—Securities held-to-maturity:** Management determines the appropriate classification of debt securities at the time of purchase and reevaluates such designation as of each statement of financial position date. Debt securities are classified as held-to-maturity when we have the positive intent and ability to hold the securities to maturity.

Held-to-maturity securities are stated at amortized cost, adjusted for amortization of premiums and accretion of discounts to maturity computed under the effective interest method. Such amortization is included in investment income. Interest on securities classified as held-to-maturity is included in investment income.

With respect to debt securities, when the fair value of a debt security classified as held-to-maturity or available for sale is less than its amortized cost, management assesses whether or not: (i) it has the intent to sell the security or (ii) it is more likely than not that the Company will be required to sell the security before its anticipated recovery. If either of



these conditions is met, the Company must recognize as other-than-temporary impairment through earnings for the difference between the debt security's amortized cost basis and its fair value, and such amount is included in net securities gains (losses).

For debt securities that do not meet the above criteria and the Company does not expect to recover a security's amortized cost basis, the security is considered other-than-temporarily impaired. For these debt securities, the Company separates the total impairment into the credit loss component and the amount of the loss related to other factors. In order to

Table of Contents

determine the amount of the credit loss for a debt security, the Company calculates the recovery value by performing a discounted cash flow analysis based on the current cash flows and future cash flows management expects to recover. The discount rate is the effective interest rate implicit in the underlying debt security. The amount of the total other-than-temporary impairment related to credit loss is recognized in earnings and is included in net securities gains (losses). The amount of the total other-than-temporary impairment related to other factors is recognized in other comprehensive income. For debt securities that have recognized as other-than-temporary impairment through earnings, if through subsequent evaluation there is a significant increase in the cash flow expected, the difference between the amortized cost basis and the cash flows expected to be collected is accreted as interest income.

During the year ended December 31, 2015, we invested in debt securities and federally insured certificates of deposit that we have classified as held-to-maturity as we currently meet the criteria for this investment classification. As of December 31, 2015, the amortized cost value is \$3.0 million with an unrealized loss of \$7,000 and a fair value of \$3.0 million. The investments are federally insured certificates of deposit that mature in \$250,000 increments at various dates in February 2016. We have not recognized an other-than-temporary impairment gain or loss or a comprehensive gain or loss to-date. We recorded investment income of \$11,000 for the year ended December 31, 2015 associated with these investments.

During the year ended December 31, 2016, we invested in corporate paper and federally insured certificates of deposit that we have classified as held-to-maturity. As of December 31, 2016, the amortized cost value was \$4.7 million with an unrealized loss of \$2,000 and a fair value of \$4.7 million. The investments consist of \$4.0 million of corporate paper, of which \$3.0 million mature in January, 2017 and \$1.0 million mature in February, 2017, and \$747,000 of certificates of deposit which mature in increments of \$250,000 between January and March, 2017. We did not recognize an other-than-temporary impairment gain or loss or a comprehensive gain or loss as of December 31, 2016.

**Research and Development**—Costs and expenses that can be clearly identified as research and development are charged to expense as incurred in accordance with Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 730-10, Research and Development.

**Stock-Based Compensation**—We account for stock options in accordance with ASC Topic 718, Compensation-Stock Compensation. For stock options issued to employees and directors we use an option pricing model for estimating fair value at the date of grant. We account for restricted stock units issued to employees at fair value, based on the market price of our stock on the date of grant, net of estimated forfeitures. Compensation expense is recognized for the portion of the award that is ultimately expected to vest over the period during which the recipient renders the required services to the Company generally using the straight-line single option method. The fair value of non-employee restricted stock units awarded are remeasured as the awards vest, and the resulting increase in fair value, if any, is recognized as compensation expense in the period the related services are rendered.

**Income Taxes**—We account for income taxes in accordance with ASC Topic 740, Income Taxes, or ASC 740, which requires the recognition of deferred tax assets and liabilities for the future consequences of events that have been recognized in our consolidated financial statements or tax returns. The measurement of the deferred items is based on enacted tax laws. In the event the future consequences of differences between financial reporting bases and the tax bases of our assets and liabilities result in a deferred tax asset, ASC 740 requires an evaluation of the probability of being able to realize the future benefits indicated by such asset. A valuation allowance related to a deferred tax asset is recorded when it is more likely than not that some portion or the entire deferred tax asset will not be realized. As part of the process of preparing our consolidated financial statements, we are required to estimate our income tax expense in each of the jurisdictions in which we operate. We also assess temporary differences resulting from differing treatment of items for tax and accounting differences. We record a valuation allowance to reduce the deferred tax assets to the amount of future tax benefit that is more likely than not to be realized. For the period when we were organized as a limited liability company, we were treated as a partnership for federal and state income tax purposes under the entity classification domestic default rules. As of December 31, 2015 and 2016, no liability for unrecognized tax benefits was required to be reported. We recognize interest and penalties related to income tax matters in income taxes, and there were none for the years ended December 31, 2015 and December 31, 2016.

We have filed, or are in the process of filing, tax returns that are subject to audit by the respective tax authorities.

Although the ultimate outcome would be unknown, we believe that any adjustments that may result from tax return

audits are not likely to have a material, adverse effect on our consolidated results of operations, financial position or cash flows.

Effective November 2015, the FASB issued final guidance in Accounting Standards Update 2015-17, Balance Sheet Classification of Deferred Taxes, which requires companies to classify all deferred tax assets and liabilities as noncurrent on the balance sheet instead of separating deferred taxes into current and noncurrent amounts. The guidance is effective for financial statements issued for annual periods beginning after December 15, 2016, and interim periods within those annual periods. Early adoption is permitted for all companies in any interim or annual period, and may be adopted on either a prospective or

Table of Contents

retrospective basis. We have adopted this standard for the interim and annual period ending December 31, 2015 on a prospective basis.

Earnings Per Share, or EPS—EPS is computed in accordance with ASC Topic 260, Earnings per Share, and is calculated using the weighted average number of common shares outstanding during each period. Diluted EPS assumes the conversion, exercise or issuance of all potential common stock equivalents unless the effect is to reduce a loss or increase the income per share. Potential common shares consist of the incremental common shares issuable upon the exercise of stock options (using the treasury stock method), the exercise and/or conversion of our convertible notes and warrants (using the if-converted method).

Recently Issued and Adopted Accounting Pronouncements

Recent accounting pronouncements are detailed in Note 2 to our consolidated financial statements included in Part II, Item 8 of this Annual Report on Form 10-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not applicable.

Table of Contents

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTAL DATA

Index to Consolidated Financial Statements

Page

<u>Report of Independent Registered Public Accounting Firm for the years ended December 31, 2015 and December 31, 2016</u>	<u>38</u>
<u>Consolidated Balance Sheets as of December 31, 2015 and December 31, 2016</u>	<u>39</u>
<u>Consolidated Statements of Comprehensive Loss for the years ended December 31, 2015 and December 31, 2016</u>	<u>40</u>
<u>Consolidated Statements of Stockholders' Equity for the years ended December 31, 2015 and December 31, 2016</u>	<u>41</u>
<u>Consolidated Statements of Cash Flows for the years ended December 31, 2015 and December 31, 2016</u>	<u>42</u>
<u>Notes to Consolidated Financial Statements</u>	<u>43</u>

37

---

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Resonant Inc.

Goleta, California

We have audited the accompanying consolidated balance sheets of Resonant Inc. as of December 31, 2016 and December 31, 2015, and the related consolidated statements of comprehensive loss, stockholders' equity, and cash flows for the years ended December 31, 2016 and December 31, 2015. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2016 and December 31, 2015, and the results of its operations and its cash flows for the years ended December 31, 2016 and December 31, 2015, in conformity with U.S. generally accepted accounting principles.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the consolidated financial statements, in 2016 the company adopted ASU No. 2014-15 Presentation of Financial Statements - Going Concern. As discussed in Note 1 to the consolidated financial statements, the Company has earned minimal revenue since inception through December 31, 2016 and has incurred significant losses from operations since inception. In addition, the Company's operations have been funded with initial capital contributions and proceeds from the sale of equity securities and debt. These events and conditions raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty. Our opinion is not modified with respect to these matters.

/s/ Crowe Horwath LLP

Sherman Oaks, California

March 30, 2017

Table of Contents

## RESONANT INC.

## Consolidated Balance Sheets

	December 31, 2015	December 31, 2016
<b>ASSETS</b>		
<b>CURRENT ASSETS</b>		
Cash and cash equivalents	\$2,501,000	\$5,084,000
Accounts receivable	—	56,000
Prepaid expenses and other current assets	138,000	160,000
Investment held-to-maturity	3,006,000	4,747,000
<b>TOTAL CURRENT ASSETS</b>	<b>5,645,000</b>	<b>10,047,000</b>
<b>PROPERTY AND EQUIPMENT</b>		
Fixed assets	1,664,000	2,269,000
Less: Accumulated depreciation and amortization	(672,000 )	(1,275,000 )
<b>PROPERTY AND EQUIPMENT, NET</b>	<b>992,000</b>	<b>994,000</b>
<b>NONCURRENT ASSETS</b>		
Intangible assets, net	815,000	1,253,000
Restricted cash	100,000	100,000
Goodwill	—	789,000
Other assets	15,000	16,000
<b>TOTAL NONCURRENT ASSETS</b>	<b>930,000</b>	<b>2,158,000</b>
<b>TOTAL ASSETS</b>	<b>\$7,567,000</b>	<b>\$13,199,000</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<b>CURRENT LIABILITIES</b>		
Accounts payable	\$518,000	\$905,000
Accrued expenses	60,000	35,000
Accrued salaries and payroll related expenses	467,000	1,765,000
Deferred revenue, current	—	279,000
Deferred rent, current	34,000	20,000
<b>TOTAL CURRENT LIABILITIES</b>	<b>1,079,000</b>	<b>3,004,000</b>
<b>LONG-TERM LIABILITIES</b>		
Deferred revenue	—	46,000
Deferred rent	20,000	—
Deferred income taxes	—	16,000
<b>TOTAL LIABILITIES</b>	<b>1,099,000</b>	<b>3,066,000</b>
Commitments and contingencies (Note 9)		
<b>STOCKHOLDERS' EQUITY</b>		
Common stock, \$0.001 par value, 47,000,000 authorized and 7,241,949 issued and outstanding as of December 31, 2015, and 12,468,647 issued and outstanding as of December 31, 2016	7,000	12,000
Preferred stock, \$0.001 par value, 3,000,000 authorized and none outstanding as of December 31, 2015 and 2016	—	—
Additional paid-in capital	37,373,000	56,331,000
Accumulated other comprehensive loss	—	(51,000 )
Accumulated deficit	(30,912,000)	(46,159,000 )
<b>TOTAL STOCKHOLDERS' EQUITY</b>	<b>6,468,000</b>	<b>10,133,000</b>
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	<b>\$7,567,000</b>	<b>\$13,199,000</b>
See Notes to Consolidated Financial Statements		





Table of Contents

## RESONANT INC.

## Consolidated Statements of Comprehensive Loss

	Year Ended December 31, 2015	Year Ended December 31, 2016
REVENUES	\$—	\$302,000
OPERATING EXPENSES		
Research and development	4,308,000	6,443,000
General and administrative	4,942,000	8,455,000
Depreciation and amortization	491,000	694,000
TOTAL OPERATING EXPENSES	9,741,000	15,592,000
OPERATING LOSS	(9,741,000 )	(15,290,000 )
OTHER INCOME (EXPENSE)		
Interest and investment income	27,000	22,000
Other income	—	(1,000 )
TOTAL OTHER INCOME (EXPENSE)	27,000	21,000
LOSS BEFORE INCOME TAXES	(9,714,000 )	(15,269,000 )
Provision for (benefit from) income taxes	1,000	(22,000 )
NET LOSS	\$(9,715,000)	\$(15,247,000)
Foreign currency translation adjustment, net of tax	\$—	\$(51,000 )
COMPREHENSIVE LOSS	\$(9,715,000)	\$(15,298,000)
NET LOSS PER SHARE - BASIC AND DILUTED	\$(1.36 )	\$(1.57 )
Weighted average shares outstanding — basic and diluted	7,160,567	9,691,115

See Notes to Consolidated Financial Statements

Table of Contents

## RESONANT INC.

## Consolidated Statements of Stockholders' Equity

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance, December 31, 2014	6,931,984	\$7,000	\$35,880,000	\$(21,197,000)	\$ —	\$14,690,000
Issuance of common stock for compensation	68,781	—	—	—	—	—
Stock issued to consultants for services	33,000	—	156,000	—	—	156,000
Stock-based compensation	—	—	1,382,000	—	—	1,382,000
Exercise of warrants, cashless	208,184	—	—	—	—	—
Tax withholding on net issuance of common stock for compensation	—	—	(45,000)	—	—	(45,000)
Net loss	—	—	—	(9,715,000)	—	(9,715,000)
Balance, December 31, 2015	7,241,949	7,000	37,373,000	(30,912,000)	—	6,468,000
Issuance of common stock for compensation	262,201	—	—	—	—	—
Common stock issued to consultants for services	8,549	—	17,000	—	—	17,000
Stock-based compensation	—	—	2,323,000	—	—	2,323,000
Sales of common stock, net of offering costs	4,711,880	5,000	15,793,000	—	—	15,798,000
Issuance of common stock in the acquisition of business assets	125,000	—	545,000	—	—	545,000
Exercise of warrants, cashless	21,068	—	—	—	—	—
Exercise of warrants for cash	98,000	—	280,000	—	—	280,000
Net loss	—	—	—	(15,247,000)	—	(15,247,000)
Foreign currency translation adjustments	—	—	—	—	(51,000)	(51,000)
Balance, December 31, 2016	12,468,647	\$12,000	\$56,331,000	\$(46,159,000)	\$(51,000)	\$10,133,000

See Notes to Consolidated Financial Statements

Table of Contents

## RESONANT INC.

## Consolidated Statements of Cash Flows

	Year Ended December 31, 2015	Year Ended December 31, 2016
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>		
Net Loss	\$(9,715,000)	\$(15,247,000)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	491,000	694,000
Deferred tax benefit	—	(23,000 )
Stock-based compensation	1,611,000	2,659,000
Non-cash investment income	(18,000 )	(1,000 )
Non-cash patent write-off	—	19,000
Non-cash loss on disposal of assets	—	1,000
Changes in assets and liabilities, net of effects of acquisition:		
Accounts receivable	—	(19,000 )
Prepays and other current assets	(32,000 )	(8,000 )
Other assets	—	(1,000 )
Accounts payable	295,000	56,000
Accrued expenses	(86,000 )	(34,000 )
Accrued salaries and payroll related expenses	79,000	980,000
Deferred revenue	—	299,000
Deferred rent	(36,000 )	(34,000 )
Net cash used in operating activities	(7,411,000 )	(10,659,000 )
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>		
Purchases of property and equipment	(415,000 )	(400,000 )
Expenditures for patents and domain names	(342,000 )	(177,000 )
Payment for acquisition of business assets, net of acquired cash	—	(513,000 )
Purchase of restricted cash investment	(100,000 )	
Redemption of investments held-to-maturity	15,000,000	10,509,000
Purchase of investments held-to-maturity	(9,989,000 )	(12,249,000 )
Net cash provided by (used in) investing activities	4,154,000	(2,830,000 )
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>		
Net proceeds from the sale of common stock from private placement offering	—	5,177,000
Net proceeds from the sale of common stock from underwritten public offering	—	10,621,000
Proceeds from exercise of warrants	—	280,000
Payment of withholding tax on net exercise of stock-based awards	(45,000 )	—
Net cash (used in) provided by financing activities	(45,000 )	16,078,000
Effects of currency translation on cash and cash equivalents	—	(6,000 )
<b>NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS</b>	<b>(3,302,000 )</b>	<b>2,583,000</b>
<b>CASH AND CASH EQUIVALENTS — Beginning of year</b>	<b>5,803,000</b>	<b>2,501,000</b>
<b>CASH AND CASH EQUIVALENTS — End of year</b>	<b>\$2,501,000</b>	<b>\$5,084,000</b>
<b>SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION</b>		
Interest	\$—	\$—
Taxes	\$1,000	\$1,000
<b>SUPPLEMENTAL DISCLOSURE OF NON-CASH ACTIVITIES</b>		
Issuance of common stock in settlement of liability	\$—	\$110,000
Issuance of common stock in the acquisition of business assets	\$—	\$545,000
Property and equipment included in accounts payable	\$—	\$191,000

Patents included in accounts payable	\$—	\$117,000
--------------------------------------	-----	-----------

See Notes to Consolidated Financial Statements

42

---

Table of Contents

RESONANT INC.

Notes to Consolidated Financial Statements

NOTE 1—ORGANIZATION AND DESCRIPTION OF BUSINESS

Overview

Resonant Inc. is a late-stage development company located in Goleta, California. We were incorporated in Delaware in January 2012 as a wholly owned subsidiary of Superconductor Technologies Inc., or STI, but had not conducted any operations through June 16, 2013. Resonant LLC, a limited liability company, was formed in California in May 2012. We commenced business on July 6, 2012 with initial contributions from our founders and STI. We changed our form of ownership from a limited liability company to a corporation in an exchange transaction in June 2013. We are the successor of Resonant LLC. We completed our initial public offering, or IPO, on May 29, 2014. We acquired all of the issued and outstanding capital stock of GVR Trade S.A, or GVR, on July 6, 2016. GVR is a wholly owned subsidiary of Resonant Inc.

We are creating an innovative software, intellectual property, or IP, and a services platform that we believe has the ability to increase designer efficiency, reduce the time to market and lower unit costs in the design of filters for radio frequency, or RF, front-ends for the mobile device industry. The RF front-end, or RFFE, is the circuitry in a mobile device responsible for analog signal processing and is located between the device's antenna and its digital baseband. The platform we are developing is based on fundamentally new technology that we call Infinite Synthesized Networks®, or ISN®, to configure and connect resonators, the building blocks of RF filters. Filters are a critical component of the RF front-end used to select desired radio frequency signals and reject unwanted signals. Our ISN® platform allows us to develop unique, custom designs that address the increasing complexity of the RFFE due to carrier aggregation, or CA, by both reducing the size of the filter and improving performance. Our goal is to utilize our ISN® platform to support our customers in reducing their time to develop complex filter designs, to access new classes of filter designs, and to do it more cost effectively.

We are validating and commercializing our technology through the creation of filter designs that address the problems in the high growth RFFE industry created by the growing number of frequency bands in mobile devices. We are developing a series of single-band surface acoustic wave, or SAW, filter designs for frequency bands presently dominated by larger and more expensive bulk acoustic wave, or BAW, filters. We are also developing multiplexer filter designs for two or more bands to address the CA requirements of our customers. Finally, we are developing unique filter designs, enabled by ISN®, to replace multiple filters and associated componentry for many bands, with higher performance. Our design development agreements with our customers generally include up-front payments to assist in covering a portion of the development costs of the designs, as well as additional milestone payments upon completion of the design.

We believe licensing our solutions is the most direct and effective means of delivering our solutions to the market. Our target customers make part or all of the RF front-end. We intend to retain ownership of our solutions, and we expect to be compensated through license fees and royalties based on sales of RF front-end filters that incorporate our solutions. We currently do not intend to manufacture or sell any physical products. In addition, we are exploring the possibility of licensing portions of our ISN® suite to designers and manufacturers of RF products in the mobile industry.

Capital Resources and Liquidity

We are using the net proceeds from the sales of our common stock for product development to commercialize our technology, research and development, the development of our patent strategy and expansion of our patent portfolio, as well as for working capital and other general corporate purposes. Our costs include employee salaries and benefits, compensation paid to consultants, capital costs for research and other equipment, costs associated with development activities including travel and administration, legal expenses, sales and marketing costs, general and administrative expenses, and other costs associated with a late-stage development, publicly-traded technology company. However, this is highly dependent on the nature of our development efforts and our success in commercialization. We continue to add employees for research and development, as well as general and administrative functions, to support our efforts. Additionally, we continue to incur consulting expenses related to technology development and other efforts as

well as legal and related expenses to protect our intellectual property.

The amounts that we actually spend for any specific purpose may vary significantly and will depend on a number of factors including, but not limited to, our expected cash resources, the pace of progress of our commercialization and development efforts, actual needs with respect to product testing, research and development, market conditions, and changes in or revisions to our marketing strategies. In addition, we may invest in complementary products, technologies or businesses.

We have earned minimal revenues since inception, and our operations have been funded with initial capital contributions and proceeds from the sale of equity securities and debt. At December 31, 2015 and December 31, 2016, we had incurred accumulated losses totaling \$30.9 million and \$46.2 million, respectively. The losses are primarily the result of

research and development costs associated with commercializing our technology, combined with start-up, financing and public company costs. We expect to continue to incur substantial costs for commercialization of our technology on a continuous basis because our business model involves developing and licensing custom filter designs. Our consolidated financial statements account for the continuation of our business as a going concern. We are subject to the risks and uncertainties associated with a new business. Our principal source of liquidity as of December 31, 2016 consists of existing cash and cash equivalents and investment balances of \$9.8 million. In the fourth quarter of 2016, we used approximately \$2.9 million in cash and investments. Due to these conditions, substantial doubt exists as to our ability to continue as a going concern. In February, 2017 we raised an additional \$7.5 million through a private placement of common stock and warrants. After evaluation of these conditions and events, we believe our current resources will provide sufficient funding for planned operations into 2018. If necessary, we will seek to raise additional capital from the sale of equity securities or the incurrence of indebtedness to allow us to continue operations. There can be no assurance that additional financing will be available to us on acceptable terms, or at all. Additionally, if we issue additional equity securities to raise funds, whether to existing investors or others, the ownership percentage of our existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Additionally, we may be limited as to the amount of funds we can raise pursuant to SEC rules and the continued listing requirements of NASDAQ. If we cannot raise needed funds, we might be forced to make substantial reductions in our operating expenses, which could adversely affect our ability to implement our business plan and ultimately our viability as a company. These consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or amounts and classification of liabilities that might result from this uncertainty.

We have a Form S-3 universal shelf registration statement on file with the SEC. The universal shelf registration statement on Form S-3 permits us to sell, in one or more public offerings, shares of our common stock, shares of preferred stock or debt securities, or any combination of such securities and warrants to purchase securities, for proceeds in an aggregate amount of up to \$35.0 million, subject to limitations on the amount of securities we may sell in any twelve-month period. As of December 31, 2016, we have raised a total of \$11.5 million of gross proceeds from the sale of 2,715,000 shares of our common stock, leaving approximately \$23.5 million of securities available for the issuance pursuant to the Form S-3. The Form S-3 will expire in May 2019.

#### NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

**Basis of Presentation and Use of Estimates**—The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States, or U.S. GAAP. In the opinion of management, all adjustments (consisting of normal accruals) considered for a fair presentation have been included. Significant estimates made in preparing these financial statements include (a) assumptions to calculate the fair values of financial instruments, warrants and equity instruments and other liabilities and the deferred tax asset valuation allowance and (b) the useful lives for depreciable and amortizable assets. Actual results could differ from those estimates. In the opinion of management, all adjustments, including normal recurring accruals considered necessary for a fair presentation, have been included.

**Consolidation** - Resonant LLC was formed in California during May 2012. Resonant LLC commenced business in July 2012 with initial funding from the founders. Resonant Inc. acquired all of the outstanding membership interests of Resonant LLC in June 2013 in an exchange transaction, and Resonant LLC became a wholly-owned subsidiary of Resonant Inc. The accompanying financial statements include the accounts of the Company and its wholly-owned subsidiary, GVR Trade, S.A. All significant intercompany balances and transactions have been eliminated.

**Cash and Cash Equivalents**—We consider all liquid instruments purchased with a maturity of three months or less to be cash equivalents.

**Concentration of Credit Risk**—We maintain checking accounts at two U.S. financial institutions. The U.S. bank accounts are insured by the Federal Deposit Insurance Corporation (FDIC) for up to \$250,000 per account owner. GVR Trade S.A., our wholly owned Swiss-based subsidiary maintains checking accounts at one major national financial institution. Management believes we are not exposed to significant credit risk due to the financial position of

the depository institutions in which our deposits are held.

Restricted Cash—Restricted cash at December 31, 2015 and December 31, 2016 represents cash held within a certificate of deposit with a financial institution, which serves as collateral for our corporate credit cards. The restriction on the cash will lapse in conjunction with the expiration of the use of the corporate credit cards.

Investments—Securities held-to-maturity: Management determines the appropriate classification of debt securities at the time of purchase and reevaluates such designation as of each balance sheet date. Investment/debt securities are classified as



held-to-maturity when we have the positive intent and ability to hold the securities to maturity. Held-to-maturity securities are stated at amortized cost, adjusted for amortization of premiums and accretion of discounts to maturity computed under the effective interest method. Such amortization is included in investment income. Interest on securities classified as held-to-maturity is included in investment income.

With respect to debt securities, when the fair value of a debt security classified as held-to-maturity or available for sale is less than its amortized cost, management assesses whether or not: (i) we have the intent to sell the security or (ii) it is more likely than not that we will be required to sell the security before its anticipated recovery. If either of these conditions is met, we must recognize an other-than-temporary impairment for the difference between the debt security's amortized cost basis and its fair value, and include such amounts in net securities gains (losses).

For debt securities that do not meet the above criteria and are not expected to be recovered at the amortized cost basis, the security is considered other-than-temporarily impaired. For these debt securities, we separate the total impairment into the credit loss component and the amount of the loss related to other factors. In order to determine the amount of the credit loss for a debt security, we calculate the recovery value by performing a discounted cash flow analysis based on the current cash flows and future cash flows management expects to recover. The discount rate is the effective interest rate implicit in the underlying debt security. The amount of the total other-than-temporary impairment related to credit loss is recognized in earnings and is included in net securities gains (losses). The amount of the total other-than-temporary impairment related to other factors is recognized in other comprehensive income. For debt securities that have recognized as other-than-temporary impairment through earnings, if through subsequent evaluation there is a significant increase in the cash flow expected, the difference between the amortized cost basis and the cash flows expected to be collected is accreted as interest income.

During the year ended December 31, 2015, we invested in debt securities and federally insured certificates of deposit that we classified as held-to-maturity as we met the criteria for this investment classification. As of December 31, 2015, the amortized cost value was \$3.0 million with an unrealized loss of \$7,000 and a fair value of \$3.0 million. The investments consisted of federally insured certificates of deposit that matured in \$250,000 increments at various dates in February 2016. We did not recognize an other-than-temporary impairment gain or loss or a comprehensive gain or loss as of December 31, 2015.

During the year ended December 31, 2016, we invested in corporate paper and federally insured certificates of deposit that we have classified as held-to-maturity. As of December 31, 2016, the amortized cost value was \$4.7 million with an unrealized loss of \$2,000 and a fair value of \$4.7 million. The investments consist of \$4.0 million of corporate paper, of which \$3.0 million mature in January, 2017 and \$1.0 million mature in February, 2017, and \$747,000 of certificates of deposit which mature in increments of \$249,000 between January and March, 2017. We did not recognize an other-than-temporary impairment gain or loss or a comprehensive gain or loss as of December 31, 2016. We recorded investment income of \$11,000 and \$18,000 for the years ended December 31, 2015 and 2016, respectively, associated with investments.

**Fair Value of Financial Instruments**—We measure certain financial assets and liabilities at fair value based on the exchange price that would be received for an asset or paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. The carrying amounts of our financial instruments, including cash equivalents, restricted cash, investments held-to-maturity, accounts payable, and accrued liabilities, approximate fair value due to their short maturities.

**Accounts Receivable**—Trade accounts receivable are stated net of allowances for doubtful accounts. Management estimates the allowance for doubtful accounts based on review and analysis of specific customer balances that may not be collectible, customer payment history and any other customer-specific information that may impact collectability of the receivable. Accounts are considered for write-off when they become past due and when it is determined that the probability of collection is remote. The allowance for doubtful accounts was \$0 at December 31, 2016. There were no accounts receivable or allowance for doubtful accounts as of December 31, 2015.

**Property and Equipment**—Property and equipment consists of leasehold improvements associated with our corporate office, software purchased during the normal course of business, computer equipment and office furniture and

fixtures, all of which are recorded at cost. During 2016, other property and equipment were acquired as part of the purchase of GVR and were initially recorded at their fair value. Depreciation and amortization is recorded using the straight-line method over the respective useful lives of the assets ranging from three to five years. Leasehold improvements are amortized over the shorter of lease term or useful life. Long-lived assets are reviewed for impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable.

**Intangible Assets, net**—Intangible assets are recorded at cost and amortized over the useful life. In the case of business combinations, intangible assets are recorded at fair value. At December 31, 2015, intangible assets, net, includes patents and a domain name purchased for use in operations. At December 31, 2016, intangible assets, net, includes patents, domain name and other intangibles purchased from GVR, including customer relationships, technology and trademark. Intangible assets are reviewed for impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable.

**Goodwill**—At December 31, 2016, goodwill represents the difference between the price paid to acquire GVR Trade and the fair value of the assets acquired, net of assumed liabilities. We review goodwill for impairment annually and whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable.

**Revenue Recognition**—Revenue consists primarily of fees received in connection with filter design projects with customers. Contracts may involve upfront non-refundable fees, intended to support our initial engineering product development efforts, as well as milestone payments based upon the successful completion of certain deliverables. In relation to the upfront non-refundable fees, we recognize revenue in accordance with the Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 605, Revenue Recognition. We recognize revenue as the services are performed over the initial engineering filter design development period and when all of the following criteria have been met: persuasive evidence of an arrangement exists, services have been rendered, collection of the revenue is reasonably assured, and the fees are fixed or determinable. We record the expenses related to these projects, generally included in research and development expense, in the periods incurred.

In addition to the upfront non-refundable payments, the filter design projects include certain milestone payments upon successful filter design or a design stage completion. These filter design projects are associated with complex technology development, and as such we do not have certainty about our ability to achieve the program milestones. Achievement of the milestone is generally dependent on the filter design specifications and the milestone typically needs to be accepted by the customer. The payment associated with achieving the milestone is generally commensurate with our effort or the value of the deliverable and is generally non-refundable. We record revenue associated with the milestone payments in accordance with ASC Topic 605-28, Milestone Method, whereby we record revenue upon successful completion of the related milestone and when collection of the revenue is reasonably assured. We record the expenses related to these projects, generally included in research and development expense, in the periods incurred.

During the year ended December 31, 2016, we recorded revenue of \$246,000 related to the development of filter designs, \$45,000 related to the achievement of milestones and \$11,000 of other revenues. Included in our consolidated revenues is \$61,000 of revenue recognized by our wholly owned subsidiary, GVR. As of December 31, 2016, we have recorded \$325,000 in deferred revenue related primarily to our filter design development projects.

**Research and Development**—Costs and expenses that can be clearly identified as research and development are charged to expense as incurred in accordance with ASC Topic 730-10, Research and Development.

**Operating Leases**—We lease office space and research facilities under operating leases. Certain lease agreements contain free or escalating rent payment provisions. We recognize rent expense under such leases on a straight-line basis over the term of the lease. Lease renewal periods are considered on a lease-by-lease basis in determining the lease term.

**Stock-Based Compensation**—We account for employee stock options in accordance with ASC Topic 718, Compensation-Stock Compensation. For stock options issued to employees and directors we use the Black-Scholes option valuation model for estimating fair value at the date of grant. For stock options issued for services rendered by non-employees, we recognize compensation expense in accordance with the requirements of ASC Topic 505-50, Equity, or ASC 505-50, as amended. Non-employee option grants that do not vest immediately upon grant are recorded as an expense over the vesting period. At the end of each financial reporting period prior to performance, the value of these options, as calculated using the Black-Scholes option valuation model, is determined, and compensation expense recognized or recovered during the period is adjusted accordingly. Since the fair market value of options granted to non-employees is subject to change in the future, the amount of the future compensation expense is subject to adjustment until the common stock options or warrants are fully vested.

We account for restricted stock units issued to employees at fair value, based on the market price of our stock on the date of grant, net of estimated forfeitures. Compensation expense is recognized for the portion of the award that is ultimately expected to vest over the period during which the recipient renders the required services to the Company generally using the straight-line single option method. The fair value of non-employee restricted stock units awarded are remeasured as the awards vest, and the resulting increase or decrease in fair value, if any, is recognized as an increase or decrease to compensation expense in the period the related services are rendered.

Stock-based compensation expense is included in research and development expenses and general and administrative expenses.

Earnings Per Share, or EPS—EPS is computed in accordance with ASC Topic 260, Earnings per Share, and is calculated using the weighted average number of common shares outstanding during each period. Diluted EPS assumes the conversion, exercise or issuance of all potential common stock equivalents unless the effect is to reduce a loss or increase the income per share. Potential common shares consist of the incremental common shares issuable upon the exercise of stock options (using the treasury stock method), the exercise and/or conversion of our convertible notes and warrants (using the if-converted method).

The shares used to compute net loss per share represent the weighted-average common shares outstanding for the years ended December 31, 2015 and December 31, 2016.

The following table presents the number of anti-dilutive shares excluded from the calculation of diluted net loss per share attributable to common stockholders for the periods below:

	Year Ended December 31, 2015	Year Ended December 31, 2016
Common stock warrants	804,463	2,915,559
Common stock options	565,050	801,690
Total shares excluded from net loss per share attributable to common stockholders	1,369,513	3,717,249

Income Taxes—We account for income taxes in accordance with ASC Topic 740, Income Taxes, or ASC 740, which requires the recognition of deferred tax assets and liabilities for the future consequences of events that have been recognized in our consolidated financial statements or tax returns. The measurement of the deferred items is based on enacted tax laws. In the event the future consequences of differences between financial reporting bases and the tax bases of our assets and liabilities result in a deferred tax asset, ASC 740 requires an evaluation of the probability of being able to realize the future benefits indicated by such asset. A valuation allowance related to a deferred tax asset is recorded when it is more likely than not that some portion or the entire deferred tax asset will not be realized. As part of the process of preparing our consolidated financial statements, we are required to estimate our income tax expense in each of the jurisdictions in which we operate. We also assess temporary differences resulting from differing treatment of items for tax and accounting differences. We record a valuation allowance to reduce the deferred tax assets to the amount of future tax benefit that is more likely than not to be realized. For the period when we were organized as a limited liability company, we were treated as a partnership for federal and state income tax purposes under the entity classification domestic default rules. As of December 31, 2015 and December 31, 2016, no liability for unrecognized tax benefits was required to be reported. We do not expect the total amount of unrecognized tax benefits to significantly change in the next 12 months. We recognize interest and penalties related to income tax matters in income taxes, and there were none for the years ended December 31, 2015 and December 31, 2016, respectively.

We have filed, or are in the process of filing, tax returns that are subject to audit by the respective tax authorities. Although the ultimate outcome would be unknown, we believe that any adjustments that may result from tax return audits are not likely to have a material, adverse effect on our consolidated results of operations, financial position or cash flows.

Reclassifications—Certain amounts in the consolidated statement of operations for the year ended December 31, 2015 have been reclassified to conform to the current year presentation.

Business Combinations—We record business combinations using the acquisition method of accounting and, accordingly, allocate the fair value of purchase consideration to the assets acquired and liabilities assumed based on their fair values at the acquisition date. The excess of the fair value of the purchase consideration over the fair value of the assets acquired and liabilities assumed is recorded as goodwill. The results of operations of the business acquired are included in our consolidated results of operations beginning on the date of acquisition.

Foreign Currency Translation—The Swiss Franc has been determined to be the functional currency for the net assets of our Swiss-based subsidiary. We translate the assets and liabilities to U.S. dollars at each reporting period using exchange rates in effect at the balance sheet date and record the effects of the foreign currency translation in accumulated other comprehensive income (loss) in shareholders' equity. We translate the income and expenses to U.S. dollars at each reporting period using the average exchange rate in effect for the period and record the effects of the foreign currency translation as other comprehensive income (loss) in the consolidated statements of comprehensive loss. Gains and losses resulting from foreign currency transactions are included in net loss in the consolidated statements of comprehensive loss.

#### Recent Accounting Pronouncements

**Presentation of Financial Statements—Going Concern** - In August 2014, the FASB issued Accounting Standards Update, or ASU, No. 2014-15, Presentation of Financial Statements - Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern. ASU 2014-15 is intended to define management's responsibility to evaluate whether there is substantial doubt about an organization's ability to continue as a going concern and to provide related footnote disclosures. The guidance became effective and was adopted for the year ended December 31, 2016. See Note 1, Capital Resources and Liquidity.

**Revenue from Contracts with Customers**—In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606). The new revenue recognition standard provides a five-step analysis of transactions to determine when and how revenue is recognized. The core principle is that a company should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In August 2015, the FASB issued ASU No. 2015-14, Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date, which defers the effective date of ASU No. 2014-09 for all entities by one year to annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. This ASU shall be applied either retrospectively to each period presented or as a cumulative-effect adjustment as of the date of adoption. Early adoption is permitted but not before the annual periods beginning after December 15, 2016, including interim periods within that reporting period. In March 2016, the FASB issued ASU No. 2016-08, Revenue from Contracts with Customers (Topic 606), Principal versus Agent Considerations (Reporting Revenue Gross versus Net). This ASU provides further guidance surrounding the recognition of revenue as well as guidance involving principal versus agent considerations. The effective date of this ASU is the same as ASU 2014-09. In April 2016, the FASB issued ASU No. 2016-10, Revenue from Contracts with Customers (Topic 606), Identifying Performance Obligations and Licensing. This amendment provides clarification surrounding the identification of performance obligations and offers licensing implementation guidance. The effective date of this ASU is the same as ASU 2014-09. In May 2016, the FASB issued ASU No. 2016-12, Revenue from Contracts with Customers (Topic 606), Narrow-Scope Improvements and Practical Expedients, which provides further guidance surrounding certain aspects of ASU 2014-09. The effective date of this ASU is the same as ASU 2014-09. We have not yet selected a transition method, nor have we determined the effect of ASU 2014-09 on our financial position, results of operations, cash flows, or presentation thereof. However, we continue to monitor our contracts with customers as related to the ASU as we believe they will be impacted by the revenue guidance.

**Balance Sheet Classification of Deferred Taxes**—In November 2015, FASB issued final guidance in ASU 2015-17, which requires companies to classify all deferred tax assets and liabilities as noncurrent on the balance sheet instead of separating deferred taxes into current and noncurrent amounts. The guidance is effective for financial statements issued for annual periods beginning after December 15, 2016, and interim periods within those annual periods. Early adoption is permitted for all companies in any interim or annual period, and may be adopted on either a prospective or retrospective basis. We early adopted this standard for the interim and annual period ending December 31, 2015 on a prospective basis. The impact on our consolidated balance sheet as of December 31, 2015 was not significant due to the full valuation allowance on our federal and state deferred tax assets. The impact on our consolidated balance sheet as of December 31, 2016 was not significant due to the full valuation allowance on our U.S. and state deferred tax assets as well as the long term nature of our net foreign deferred tax liabilities.

**Leases**—In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), a comprehensive new leases standard that amends various aspects of existing accounting guidance for leases. It will require recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. The main difference between previous U.S. GAAP and the amended standard is the recognition of lease assets and lease liabilities by lessees on the balance sheet for those leases classified as operating leases under previous U.S. GAAP. The accounting applied by a lessor is largely unchanged from that applied under previous U.S. GAAP. As a result, we will have to recognize a liability to make lease payments (the lease liability) and a right-of-use asset representing our

right to use the underlying asset for the lease term on the balance sheet. The guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted. We are currently evaluating the effects of the new guidance on our consolidated financial statements and disclosures but we do not expect it to have a material impact on our consolidated financial statements.

Compensation-Stock Compensation—In March 2016, the FASB issued ASU No. 2016-09, Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-based Payment Accounting. This ASU is intended to simplify several aspects of the accounting for share-based transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. For public companies, the amendments in this update are effective for annual periods beginning after December 15, 2016, and interim periods within those annual periods. Early adoption is permitted for any entity in any interim or annual period. Variables such as timing of award expirations,



changes in stock price over time, ultimate payout for awards with performance contingencies, shares canceled before vesting, and the tax rules in effect at the time of settlement will impact both the timing and the amount of the tax deductions. Thus, this ASU is likely to add more volatility to our effective tax rate. We are in the process of determining the impact of this ASU on our consolidated financial statements and footnote disclosures as we prepare to adopt the new standard effective January 1, 2017.

Intangibles-Goodwill and Other—In January 2017, the FASB issued ASU No. 2017-04, Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment, which simplifies the accounting for goodwill impairments by eliminating step 2 from the goodwill impairment test. The amended guidance will become effective for us commencing in the first quarter of fiscal 2019. We are currently evaluating the impact of this new standard.

### NOTE 3—INTANGIBLE ASSETS AND GOODWILL

Intangible assets include patents, a domain name and other intangibles. Certain patents were acquired from STI as a result of an asset contribution and were recorded at their carryover basis. The fair value of the patents remained substantially the same as their carrying value at the exchange date. In addition, we acquired other patents and the domain name [www.resonant.com](http://www.resonant.com) through the normal course of business. Other intangibles were acquired as part of the purchase of GVR and were initially recorded at their fair value. Issued patents are amortized over their approximate useful life of 17 years, or 20 years in the case of new patents, once they are approved by their respective regulatory agency. For the patents acquired from STI, we are amortizing them over the remaining useful life of 1 to 12 years as of December 31, 2016. The domain name is amortized over the approximate useful life of 10 years. The other intangibles acquired from GVR are amortized over their useful life of three to five years (see Note 6). Intangible assets consisted of the following at December 31, 2016:

	2015	2016
Patents	\$856,000	\$1,132,000
Domain Name	22,000	22,000
Client Base (1)	—	137,000
Trademark (1)	—	17,000
Backlog (1)	—	12,000
Technology (1)	—	84,000
	878,000	1,404,000
Less: accumulated amortization (63,000 )	(63,000 )	(151,000 )
Net intangible assets	\$815,000	\$1,253,000

(1) Includes the impact of foreign currency translation. The total impact at December 31, 2016 was \$5,000.

During the year ended December 31, 2016, we wrote-off \$19,000 of patents we are no longer pursuing. The write-off is included in Research and Development expense. There were no write-offs for the year ended December 31, 2015.

Amortization of intangible assets was \$27,000 and \$89,000 for the years ended December 31, 2015 and 2016, respectively. The following table summarizes the estimated amortization expense relating to the intangible assets as of December 31, 2016:

Years ending December 31,	
2017	\$116,000
2018	115,000
2019	90,000
2020	63,000
2021	54,000
2022 and thereafter	346,000
Total amortization expense	\$784,000

Goodwill represents the excess of the purchase price over the fair value of the net assets acquired from GVR Trade (see Note 5). Goodwill is not amortized, but is subject to impairment tests on at least an annual basis and whenever circumstances suggest that goodwill may be impaired.

	Goodwill
Balance at December 31, 2015	\$—
Acquisition of GVR	824,000
Effect of currency translation	(35,000 )
Balance at December 31, 2016	\$789,000

#### NOTE 4—PROPERTY AND EQUIPMENT, NET

Property and equipment, net consists of the following:

	2015	2016
Cost:		
Computers, peripheral and scientific equipment	\$360,000	\$618,000
Software	644,000	967,000
Leasehold Improvements	476,000	470,000
Office furniture and equipment	184,000	214,000
	1,664,000	2,269,000
Less accumulated depreciation and amortization	(672,000 )	(1,275,000)
Property and equipment, net	\$992,000	\$994,000

Depreciation expense for the years ended December 31, 2015 and December 31, 2016 was \$464,000 and \$604,000, respectively. Disposals of property were none and \$1,000 for the years ended December 31, 2015 and December 31, 2016, respectively.

## NOTE 5—ACQUISITION OF GVR TRADE S.A.

On July 6, 2016, we acquired all of the issued and outstanding capital stock of GVR Trade S.A. The purchase price, consisting of \$661,000 in cash and 125,000 shares of our common stock with a fair value of \$545,000, based on a per share price of \$4.36 as of the date of acquisition, was approximately \$1.2 million. We incurred approximately \$92,000 of acquisition related expenses which are included in general and administrative expenses for the year ended December 31, 2016. GVR is now a wholly owned direct subsidiary of Resonant. The acquisition of GVR is an extension to the long-term relationship between our two companies during the past eight years and enables us to enhance our filter design tools and throughput capabilities, thereby further expanding our ability to support licensing agreements for our customers.

The fair values for the assets acquired and liabilities assumed were based upon independent calculations and valuations. We recorded goodwill for the excess of the purchase price over fair value of the assets acquired and liabilities assumed. The purchase price was allocated based on the fair values of assets and liabilities as follows:

Assets acquired	
Cash and cash equivalents	148,000
Other current assets	52,000
Property and equipment	23,000
Intangible assets	
Customer relationships	143,000
Developed technology	88,000
Trademarks and other	31,000
Total assets acquired	485,000
Liabilities assumed	
Current liabilities	(35,000 )
Deferred tax liability	(41,000 )
Deferred revenue, current	(27,000 )
Total liabilities assumed	(103,000 )
Net value of assets acquired and liabilities assumed	382,000
Total purchase price	1,206,000
Excess of purchase price over fair value of assets acquired and liabilities assumed - recorded as Goodwill	824,000

We review goodwill for impairment annually and whenever events or circumstances indicate that the carrying amount of the assets may not be recoverable.

The acquisition was not material to our consolidated financial statements and we have included the financial results of the business acquisition in our consolidated financial statements from the date of acquisition. Our consolidated statements of comprehensive loss include \$127,000 of net loss of GVR for the year ended December 31, 2016. Pro forma historical results of operations of this business acquisition during the year ended December 31, 2016 have not been presented as it is not material to our consolidated statements of comprehensive loss.

## NOTE 6—WARRANTS

From time to time, we have issued warrants to purchase shares of common stock. These warrants have been issued in connection with the financing transactions and consulting services. Our warrants are subject to standard anti-dilution provisions applicable to shares of our common stock.

## Bridge Warrants

In connection with and as an inducement to make the bridge loans in January and March 2013, Resonant LLC issued to each of our three founders 5-year warrants to purchase Class B units of Resonant LLC at an exercise price of \$0.40

per unit, which we refer to as the Bridge Warrants. The Bridge Warrants were issued in two tranches, at the same time the bridge loan was funded, with each founder receiving warrants for 20,833 Class B units on each of January 31, 2013 (for a total of 62,499

Class B units) and March 19, 2013 (for a total of 62,499 Class B units). The founders paid an aggregate of \$1,000 in cash for the Bridge Warrants.

On June 17, 2013, in connection with our acquisition of all of the outstanding membership interests of Resonant LLC in an exchange transaction, the founders exchanged their Bridge Warrants to purchase an aggregate of 124,998 Class B units of Resonant LLC for Bridge Warrants to purchase an aggregate of 249,999 shares of our common stock at an exercise price of \$0.20 per share. All other terms of the Bridge Warrants remained the same.

#### Consulting Warrant, Financing Warrant and Underwriting Warrant

Upon consummation of our Senior Convertible Note financing, for business consulting services provided by MDB, we issued to MDB a 7-year warrant to purchase 222,222 shares of our common stock at an exercise price of \$0.01 per share, which we refer to as the Consulting Warrant. The Consulting Warrant is exercisable six months after the completion of our initial public offering, or IPO, in 2014 and prior to June 15, 2020.

In addition, for placement agent services provided by MDB in connection with our Senior Convertible Note financing, we issued to MDB a 7-year warrant to purchase shares of our common stock, which we refer to as the Financing Warrant. The Financing Warrant is exercisable six months after the completion of our IPO and prior to June 15, 2020. The Financing Warrant is exercisable for a number of shares of our common stock equal to \$700,000 divided by the Financing Warrant's exercise price.

In connection with the closing of our IPO, we also issued a third warrant to MDB related to their role as the sole underwriter for our IPO, we refer to this as the Underwriting Warrant. We issued them a 5-year warrant to purchase 310,500 shares of common stock at an exercise price of \$7.50 per share. The warrant was not exercisable until November 24, 2014 (180-days from the date of the underwriting agreement) and expires May 28, 2019.

#### Investor Relations Warrants

In August 2014 and October 2014, we entered into agreements with our investor relations firm, or IR Firm, and an IR consultant to provide us with investor relations services. Pursuant to the IR Firm agreement, in addition to monthly cash compensation of \$8,500 per month, we issued to the IR Firm a 3-year consulting warrant, or IR Consulting Warrant, for the purchase of 42,000 shares of common stock that became fully vested on July 21, 2015. The IR Consulting Warrant has an exercise price of \$8.31 and expires on July 17, 2017. We estimated the fair value of the IR Consulting Warrant at issuance date to be \$119,000 using the Black-Scholes option valuation model with the following assumptions: market price of the stock of \$6.91 per share, time to maturity of 3 years, volatility of 69.7%, zero expected dividend rate and risk free rate of 0.88%. In September, 2015 we amended the agreement with the IR Firm and adjusted the monthly cash compensation to \$3,000 per month. In August, 2016 we further amended the agreement with the IR Firm and adjusted the monthly cash compensation to \$5,000 per month.

Pursuant to our agreement with the IR consultant, in addition to monthly cash compensation of \$5,000 per month, we issued to the IR consultant a 4-year consulting warrant, or IR Warrant, for the purchase of 6,000 shares of common stock that vests monthly over twelve months. The IR Warrant has an exercise price of \$6.50 and expires on September 30, 2018. Since the IR Warrant vests monthly, we estimated the fair value of the IR Warrant at the date of each vesting period over the twelve month period using the Black-Scholes option valuation model with the following assumptions: market prices of the stock of \$2.98-\$11.62 per share, time to maturity of 3.3 to 4 years, volatility of ranges of 60% to 81.8%, zero expected dividend rate and risk free rate range of 0.91% to 1.5%. We recorded an increase of \$58,000 and a reduction of \$26,000 for stock-based compensation related to the IR warrants during the year ended December 31, 2015 which was included in general and administration expense.

There was no expense recorded for the year ended December 31, 2016 related to the investor relations warrants as they had been fully expensed as of December 31, 2015.

#### Private Placement Warrants

In April 2016, we issued warrants to purchase 1,996,880 shares of our common stock at an exercise price of \$2.86 in connection with our private placement sale of 1,996,880 shares of common stock. The warrants are exercisable for a period

commencing 6 months and ending 36 months after the closing of the financing on April 25, 2016. We also issued to the placement agents in the financing, warrants to purchase an aggregate of 99,844 shares of our common stock at an

exercise price of \$2.86 for a period commencing 6 months and ending 36 months after the closing. We refer to these warrants as Private Placement Warrants. We estimated the fair value of the Private Placement Warrants at \$2,500,000 using the Black-Scholes option valuation model with the following assumptions: market prices of the stock of \$2.90 per share, time to maturity of 3

years, volatility of 60%, zero expected dividend rate and risk free rate of 0.97%. The allocation of the fair value of these warrants was included in additional paid-in capital on the consolidated balance sheet.

### Underwriting Warrants

In September 2016, we issued warrants to purchase 135,750 shares of our common stock at an exercise price of \$4.25 to the underwriter of our public offering of 2,715,000 shares of common stock. The warrants are exercisable for a 2 year period commencing September 9, 2017. We refer to these warrants as Underwriting Warrants - Public Offering 2016. We estimated the fair value of the Underwriting Warrants -Public Offering 2016 at \$475,000 using the Black-Scholes option valuation model with the following assumptions: market prices of the stock of \$6.54 per share, time to maturity of 3 years, volatility of 60%, zero expected dividend rate and risk free rate of 0.90%. The allocation of the fair value of these warrants was included in additional paid-in capital on the consolidated balance sheet.

A roll-forward of warrant activity from January 1, 2015 to December 31, 2015 is shown in the following table:

	Issued and Outstanding Warrants as of January 1, 2015	Warrants Issued	Warrants Exercised/ Expired	Issued and Outstanding Warrants as of December 31, 2015
Bridge Warrants	249,999	—	—	249,999
Consulting Warrant	222,222	—	(104,444 ) <sup>(1)</sup>	117,778
Financing Warrants	208,763	—	(130,577 ) <sup>(1)</sup>	78,186
Underwriting Warrant	310,500	—	—	310,500
IR Consulting Warrants	48,000	—	—	48,000
	1,039,484	—	(235,021 )	804,463

<sup>(1)</sup> During the year ended December 31, 2015, there were 235,021 common stock warrants that were exercised through a cashless exercise which netted 208,184 shares being issued.

A roll-forward of warrant activity from January 1, 2016 to December 31, 2016 is shown in the following table:

	Issued and Outstanding Warrants as of January 1, 2016	Warrants Issued	Warrants Exercised/ Expired	Issued and Outstanding Warrants as of December 31, 2016
Bridge Warrants	249,999	—	—	249,999
Consulting Warrant	117,778	—	(19,778 ) <sup>(1)</sup>	98,000
Financing Warrants	78,186	—	—	78,186
Underwriting Warrant	310,500	—	—	310,500
IR Consulting Warrants	48,000	—	—	48,000
Private Placement Warrants	—	2,096,724	(101,600 ) <sup>(2)</sup>	1,995,124
Underwriting Warrants - Public Offering 2016	—	135,750	—	135,750
	804,463	2,232,474	(121,378 )	2,915,559

<sup>(1)</sup> During the year ended December 31, 2016, there were 19,778 common stock warrants that were exercised through a cashless exercise which netted 19,693 shares being issued.

<sup>(2)</sup> During the year ended December 31, 2016, there were 3,600 common stock warrants that were exercised through a cashless exercise which netted 1,375 shares being issued. Additionally, there were 98,000 shares exercised for cash.

## NOTE 7—STOCKHOLDERS' EQUITY

### Common Stock

Pursuant to our amended and restated certificate of incorporation, we are authorized to issue 47,000,000 shares of common stock. Holders of our common stock are entitled to dividends as and when declared by the board of directors, subject to rights and holders of all classes of stock outstanding having priority rights to dividends. There have been no dividends declared to date. Each share of common stock is entitled to one vote.

On April 25, 2016, we completed the private placement sale of 1,996,880 units at a price of \$2.985 per unit to institutional and individual investors, which included existing investors, executives and board members. Each unit consists of one share of our common stock and one warrant to purchase one share of our common stock at an exercise price of \$2.86 for a period commencing 6 months and ending 36 months after the closing of the financing. We also issued to the placement agents in the financing, warrants to purchase an aggregate of 99,844 shares of our common stock at an exercise price of \$2.86 for a period commencing 6 months and ending 36 months after the closing. Gross proceeds were \$6.0 million with net proceeds of \$5.2 million after deducting placement agent fees and offering expenses. We registered for resale by the investors the shares of common stock, and the shares of common stock issuable upon exercise of the warrants, purchased by the investors in the financing pursuant to a registration statement that was declared effective by the SEC in May 2016.

On September 14, 2016, we completed the sale of 2,715,000 shares of common stock at a price of \$4.25 per share in an underwritten public offering. We also issued to the underwriter warrants to purchase 135,750 shares of our common stock at an exercise price of \$4.25 exercisable for a 2 year period commencing September 9, 2017. Gross proceeds were \$11.5 million with net proceeds of \$10.6 million after deducting underwriter fees and offering expenses. The shares were issued pursuant to a shelf registration statement that we filed with the SEC, which became effective on May 27, 2016.

We have a Form S-3 universal shelf registration statement on file with the SEC. The universal shelf registration statement on Form S-3 permits us to sell, in one or more public offerings, shares of our common stock, shares of preferred stock or debt securities, or any combination of such securities and warrants to purchase securities, for proceeds in an aggregate amount of up to \$35.0 million, subject to limitations on the amount of securities we may sell in any twelve-month period. As of December 31, 2016, we have raised a total of \$11.5 million of gross proceeds from the sale of 2,715,000 shares of our common stock, leaving approximately \$23.5 million of securities available for the issuance pursuant to the Form S-3. The Form S-3 will expire in May 2019.

### Preferred Stock

Pursuant to our amended and restated certificate of incorporation, we are authorized to issue 3,000,000 shares of preferred stock. The board of directors has the authority, without action by our stockholders, to designate and issue shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. To-date, no preferred shares have been issued.

## NOTE 8— STOCK-BASED COMPENSATION

### 2014 Omnibus Incentive Plan

In January 2014, our board of directors approved the 2014 Omnibus Incentive Plan and amended and restated the plan in March 2014. Our stockholders approved the Amended and Restated 2014 Omnibus Incentive Plan, or the 2014 Plan, in March 2014. Our 2014 Plan permits for the issuance of equity based instruments covering up to an initial total of 1,400,000 shares of common stock. In June 2016, our board of directors and stockholders approved an increase of 1,300,000 shares of common stock bringing the total shares allowed under the plan to 2,700,000.





### Option Valuation

We have computed the fair value of options granted to employees and non-employees using the Black-Scholes option valuation model. The compensation costs of non-employee arrangements are subject to re-measurement at each reporting period over the vesting terms as earned. Option forfeitures are estimated at the time of valuation and reduce expense ratably over the vesting period. This estimate will be adjusted periodically based on the extent to which actual option forfeitures differ, or are expected to differ, from the previous estimate, when it is material. The expected term used for options issued to non-employees is the contractual life and the expected term used for options issued to employees is the estimated period of time that options granted are expected to be outstanding. We have estimated the expected life of our employee stock options using the “simplified” method, whereby, the expected life equals the arithmetic average of the vesting term and the original contractual term of the option due to our lack of sufficient historical data. For consultants we use an estimated expected life of the remaining term of the stock option grant, which is initially ten years. Since our stock has not been publicly traded for a sufficiently long period of time, we are utilizing an expected volatility figure based on a review of the historical volatilities, over a period of time, equivalent to the expected life of the instrument being valued, of similarly positioned public companies within our industry. The risk-free interest rate was determined from the implied yields from U.S. Treasury zero-coupon bonds with a remaining term that best approximates the expected term of the instrument being valued.

### Stock Options to Employees and Non-Employees

During the years ended December 31, 2015 and 2016, we granted incentive stock options for the purchase of 77,500 and 346,500 shares, respectively, of our common stock to our employees and consultants. The options granted in 2015 have an exercise price range of \$3.83 per share to \$12.98 per share with a term of ten years. The options granted in 2016 have an exercise price range of \$1.93 per share to \$5.50 per share with a term of ten years. The options vest over various periods, generally quarterly over sixteen quarters. The options granted in 2015 had an aggregate grant date fair value of \$384,000 and the options granted in 2016 had an aggregate grant date fair value of \$627,000 utilizing the Black-Scholes option valuation model.

We estimated the fair value of stock options awarded during the years ended December 31, 2015 and 2016 using the Black-Scholes option valuation model. The fair values of stock options granted for the years were estimated using the following assumptions:

	Option Grants Awarded During the Year Ended December 31, 2015	Option Grants Awarded During the Year Ended December 31, 2016
Stock Price	\$3.83 - \$12.98	\$1.93 - \$5.50
Dividend Yield	0%	0%
Expected Volatility	60.0%	60.0%
Risk-free interest rate	1.44% - 1.86%	1.30% - 2.06%
Expected Term	7 years	7 years

Stock-based compensation expense related to stock options for employees was \$451,000 and \$529,000 for the years ended December 31, 2015 and 2016, respectively. We are also required to estimate forfeitures at the time of grant, and revise those estimates in subsequent periods if actual forfeitures differ from our estimates. We use historical data to estimate pre-vesting option forfeitures and record stock-based compensation expense only for those awards that are expected to vest. To the extent that actual forfeitures differ from our estimates, the difference is recorded as a cumulative adjustment in the period the estimates were revised. For the year ended December 31, 2015 there was no forfeiture rate applied as there had been very minimal forfeitures since the grant of awards. Beginning July 1, 2016, we applied a forfeiture rate of six percent, which is reflected in our stock-based compensation expense related to stock options for the year ended December 31, 2016, as we now have sufficient historical information to enable us to predict this rate.

In August 2016, we modified certain stock options previously granted to a former executive. The modification was made in connection with the executive’s termination. The modification included accelerated vesting of stock options to

purchase 26,876 shares of common stock as well as an extension of the exercise period for all vested shares, including stock options to purchase 43,438 shares of common stock. As a result of the modification, additional stock compensation expense of \$48,000 was recognized for the year December 31, 2016.

For stock options paid in consideration of services rendered by non-employees, we recognize compensation expense in accordance with the requirements of ASC 505-50. Non-employee stock option grants that do not vest immediately upon grant are recorded as an expense over the vesting period. At the end of each financial reporting period prior to performance, the value of these stock options, as calculated using the Black-Scholes option valuation model, is determined, and compensation expense recognized or recovered during the period is adjusted accordingly. Since the fair market value of stock options granted to non-employees is subject to change in the future, the amount of the future compensation expense is subject to adjustment until the common stock options are fully vested. Stock-based compensation expense related to stock options for consultants was \$60,000 and \$27,000 for the years ended December 31, 2015 and 2016, respectively.

#### Stock Option Award Activity

The following is a summary of our stock option activity during the year ended December 31, 2015:

	Number of Options	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Weighted Average Remaining Life In Years
Outstanding, January 1, 2015	491,200	\$ 6.29	\$ 4.14	9.42
Granted	77,500	8.36	4.95	9.27
Exercised	—	—	—	—
Canceled/Forfeited	(3,650 )	7.28	4.51	—
Outstanding, December 31, 2015	565,050	\$ 6.57	\$ 4.25	7.84

	Number of Options	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Weighted Average Remaining Life In Years
Exercisable, January 1, 2015	142,895	\$ 6.02	\$ 4.01	9.41
Vested	160,720	6.47	4.21	6.70
Exercised	—	—	—	—
Canceled/Forfeited	(1,200 )	8.06	5.19	—
Exercisable, December 31, 2015	302,415	\$ 6.25	\$ 4.11	7.07

The following is a summary of our stock option activity during the year ended December 31, 2016:

	Number of Options	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Weighted Average Remaining Life In Years
Outstanding, January 1, 2016	565,050	\$ 6.57	\$ 4.25	7.84
Granted	346,500	3.03	1.81	8.51
Exercised	—	—	—	—
Canceled/Forfeited	(109,860 )	5.08	3.32	—
Outstanding, December 31, 2016	801,690	\$ 5.25	\$ 3.32	7.40

	Number of Options	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Weighted Average Remaining Life In Years
Exercisable, January 1, 2016	302,415	6.25	4.11	7.07
Vested	173,010	5.37	3.43	5.95
Exercised	—	—	—	—
Canceled/Forfeited	(56,251 )	5.87	3.87	
Exercisable, December 31, 2016	419,174	5.94	3.86	6.00

The following table presents information related to stock options outstanding and exercisable at December 31, 2016:

Options Outstanding Exercise Price	Options Exercisable		
	Outstanding Number of Options	Weighted Average Remaining Life In Years	Exercisable Number of Options
\$1.93 - \$2.00	194,314	7.12	44,820
\$3.83 - \$4.70	70,000	8.70	8,127
\$5.06 - \$6.00	366,420	5.26	277,828
\$6.49 - \$7.20	60,000	7.65	34,390
\$7.54 - \$7.55	73,456	7.12	37,125
\$8.06 - \$12.98	37,500	8.10	16,884
	801,690	6.00	419,174

As of December 31, 2016, there was \$1.0 million of unrecognized compensation expense related to unvested stock options, which is expected to be recognized over a weighted average vesting period of approximately 2.6 years. The aggregate intrinsic value of outstanding options and options vested as of December 31, 2015 were zero as there were no options whose exercise price was less than the closing fair market value of our common stock of \$2.65 per share. The aggregate intrinsic value of outstanding options and options vested as of December 31, 2016 were \$647,000 and \$146,000, respectively, representing options whose exercise price was less than the closing fair market value of our common stock of \$5.05 per share. There were no excess tax benefits realized for tax deductions from stock options exercised during the years ended December 31, 2016 and 2015 as no options were exercised.

#### Restricted Stock Units Activity

We account for restricted stock units issued to employees at fair value, based on the market price of our stock on the date of grant, net of estimated forfeitures. The fair value of non-employee restricted stock units awarded are re-measured as the awards vest, and the resulting increase in fair value, if any, is recognized as expense in the period the related services are rendered. During the years ended December 31, 2015 and 2016 we recorded \$849,000 and \$1.7 million, respectively, of stock-based compensation related to the restricted stock unit shares that have been issued to-date. During the years ended December 31, 2015 and 2016 we granted 343,930 and 1,383,159 restricted stock unit shares, respectively. Shares vested during the years ended December 31, 2015 and 2016 were 73,122 and 262,201, respectively, of which 4,341 and no shares, respectively, were surrendered by the employees for payment of payroll tax withholding liabilities. During the years ended December 31, 2015 and 2016 there were 26,446 and 41,029 shares, respectively, forfeited as a result of employee terminations.

A summary of restricted stock unit activity for the years ended December 31, 2015 is as follows:

	Number of Restricted Share Units	Weighted-Average Grant-Date Fair Value
Outstanding at January 1, 2015	131,267	\$ 6.00
Granted	343,930	6.35
Vested	(73,122 )	6.07
Forfeited	(26,446 )	(8.06 )
Outstanding at December 31, 2015	375,629	\$ 6.16

A summary of restricted stock unit activity for the years ended December 31, 2016 is as follows:

	Number of Restricted Share Units	Weighted-Average Grant-Date Fair Value
Outstanding at January 1, 2016	375,629	6.16
Granted	1,383,159	3.22
Vested	(262,201 )	4.54
Forfeited	(41,029 )	5.64
Outstanding at December 31, 2016	1,455,558	\$ 3.64

As of December 31, 2016, there was \$4.2 million of unrecognized compensation expense related to unvested restricted stock unit agreements which is expected to be recognized over a weighted-average period of approximately 2.7 years. For restricted stock unit awards subject to graded vesting, we recognize compensation cost on a straight-line basis over the service period for the entire award.

#### Performance Awards

In 2015, we put in place a performance based bonus program which identified five specific performance objectives to be accomplished during 2015 for all employees. The awards contained a combination of service conditions and performance conditions based on the achievement of specified performance thresholds approved by the board. The performance bonus amounts were based on each individual's salary paid during the year multiplied by the bonus multiplier percentage ranging from 6.67% to 13.34% per objective plus an additional 10% bonus for non-executive employees and a multiplier percentage ranging from 16.67% to 25% per objective for executive employees. In February 2016, upon board approval, we granted 90,265 restricted stock unit awards, of which 45,140 shares vested on the issuance date and the remaining shares vested on January 1, 2017. The number of shares granted to each employee was determined based on the performance bonus amount divided by the 10-day average stock price prior to December 31, 2015 which was \$2.68. For the year ended December 31, 2015, we recognized stock compensation expense of \$121,000 in connection with the program, which was included in accrued salaries and payroll related expenses as of year-end. The accrual was released upon issuance of the equity awards in 2016. For the year ended December 31, 2016 we recognized additional stock compensation expense of \$44,000, which is included in the restricted stock unit expense discussed under "Restricted Stock Units Activity" above.

For 2016, we put in place a performance based bonus program which identified five specific performance objectives to be accomplished during 2016 for all employees. The awards contained a combination of service and performance conditions based on the achievement of specified performance thresholds approved by the board. The performance bonus amounts were based on each individual's salary paid during the year multiplied by the bonus multiplier percentage ranging from 6.67% to 20% per objective plus an additional 10% bonus for non-executive employees and a multiplier percentage ranging from 16.67% to 50% per objective for executive employees. Additionally, the performance bonus was subject to the achievement of certain stock price thresholds for the ten trading days ending on the last trading day of 2016. The performance bonus was to be paid in the form of cash or equity awards which would

vest in full on the tenth business day following grant. The number of shares granted to each employee would be determined based on the performance bonus amount divided by the 10-day average stock price prior December 31, 2016. Although the specific performance objectives were not achieved, it was determined that a discretionary bonus would be awarded under the program based on the significant achievements made toward the objectives during the year. The payment method and terms remain the same as the original bonus program. The discretionary awards

58

---

were granted in February, 2017, and consisted of cash awards totaling \$688,000 and equity awards in the form of restricted stock units and stock options which will vest in full 10 days following grant. The equity awards consisted of 27,390 restricted stock units with a grant date fair value of \$119,000 based on the grant date share price of \$4.36 and 125,880 stock options with a grant date fair value of \$332,000 using the Black-Scholes option valuation model using the following assumptions: stock price of \$4.36; dividend yield of 0%; expected volatility of 60%; risk-free rate of 2.15% and expected life of 7 years. For the year ended December 31, 2016, we recorded stock compensation expense of \$451,000 in connection with these equity awards and salary expenses of \$688,000 related to the cash portion of awards under this program. These expenses, totaling \$1.1 million are included in accrued salaries and payroll related expenses as of December 31, 2016. For the year ended December 31, 2016, \$679,000 and \$460,000 are included in research and development expenses and general and administrative expenses, respectively.

On August 8, 2016, we issued a market based restricted stock award of 250,000 shares to one of our executives. The award will vest 50% on the date the awards are earned and 50% on September 30, 2019. Earning of the awards is based on the attainment of stock price performance objectives during the performance period which is measured quarterly or upon an earlier liquidation event. The number of RSUs which will be earned is dependent on the average share price during the last month of the quarter. If the average share price, as defined in the agreement, is less than or equal to \$15 then no shares shall be earned. If the average share price is greater than or equal to \$65 then 100% of the shares shall become earned. If the average share price is between \$15 and \$65 then a linear interpolation will be applied to determine the shares earned. To determine the fair value of the award we used a Monte Carlo simulation which simulates future stock prices for the Company and, hence, shares vested, pursuant to the award. A key input into the model is the expected volatility for our stock. This estimate considers the historical volatility of our stock as well as the stock price volatility of guideline public companies. The fair value was determined to be \$67,000 of which \$8,000 was recorded as stock compensation expense in the year ended December 31, 2016 and is included in general and administrative expenses. The unamortized expense related to this award is \$59,000 and is expected to be recognized over 2.7 years.

#### Common Stock Issued to Non-Employees

In September 2015, we issued a total of 33,000 shares of our common stock to two consultants in exchange for business and corporate development services provided both in Asia and in the United States. We recorded \$156,000 in stock compensation expense related to these stock issuances for the year ended December 31, 2015, which represents the fair value of the stock on the date of issuance. There were no similar items, or expense recorded, for the year ended December 31, 2015.

In February 2016, we issued 3,000 shares of our common stock to a consultant in exchange for employment recruiting services. In April 2016, we issued 5,549 shares of common stock to a previous employee in connection with a separation agreement. We recorded \$6,000 in stock compensation expense related to the stock issuances for the year ended December 31, 2016. The amount of compensation expense related to the consultant shares issued represents the fair value of the stock on the dates of issuance. There was no expense recorded during the year ended December 31, 2016 related to the shares issued to our previous employee as the value of those shares had been accrued at the time of separation in 2015.

Total equity-based compensation costs recorded in the consolidated statements of comprehensive loss is allocated as follows:

	Year Ended December 31, 2015	Year Ended December 31, 2016
Research and development		
Employees	\$ 721,000	\$ 944,000
Non-employees	33,000	36,000



Edgar Filing: Resonant Inc - Form 10-K

Total research and development	754,000	980,000
General and administrative		
Employees and directors	673,000	1,372,000
Non-employees	184,000	307,000
Total general and administrative	857,000	1,679,000
Total equity-based compensation	1,611,000	2,659,000

## NOTE 9—COMMITMENT AND CONTINGENCIES

In October 2013, we signed a lease for office space for our corporate headquarters, and moved into the new location in the first quarter of 2014. The lease had a term of 38 months and a rental cost of approximately \$5,412 per month, increasing 3% annually after the first fourteen months. In addition, our share of building operating costs were estimated to be \$2,101 per month. In April 2014, we amended the lease to add additional space which increased our rent to \$8,286 per month beginning August 1, 2014 plus estimated monthly operating costs of \$3,154 and extended the lease term through July, 2017. We had a renewal option for an additional 3 year term. The original lease included a tenant improvement allowance of \$72,160 and the amended lease included an additional tenant improvement allowance of \$38,320. The allowances were used to construct our office build-out and have been capitalized as leasehold improvements as of December 31, 2015 and 2016. The capitalized costs are being amortized over the amended lease term through July 2017. Effective April 2017, we amended the lease to add additional space and to extend our lease term through July 2018, with an option to extend through July, 2019. With the amendment, the total leased space is now 9,024 feet with monthly rent of \$14,479 through July 31, 2017 and \$13,987 from August 1, 2017 through the end of the lease, plus estimated monthly operating costs of approximately \$7,000.

In November 2013, we signed a lease for our satellite development office in Burlingame, CA. The lease had a two-year term, and rental costs of approximately \$4,000 per month. In May 2015, we renewed the lease for a one year period expiring November 30, 2016 with rental costs of \$5,000 per month. Effective December 16, 2016, we signed a new lease of 5,248 square feet of office space within the same building in Burlingame, California commencing February 2017. The lease has a five-year term, and rental costs of approximately \$17,000 per month.

Rent expense related to our facilities was \$163,000 and \$220,000, respectively, for the years ended December 31, 2015 and December 31, 2016.

Future minimum rent payments are as follows:

Years ending December 31,	
2017	\$461,000
2018	\$351,000
2019	\$212,000
2020	\$218,000
2021	\$224,000
2022	\$19,000
Total minimum rent payments	\$1,485,000

Legal Proceedings—We are occasionally involved in legal proceedings and other matters arising from the normal course of business.

Beginning on March 17, 2015, three putative class action lawsuits were filed in the United States District Court for the Central District of California, naming us, Terry Lingren and John Philpott as defendants. The three lawsuits were consolidated into a single putative class action, In re Resonant Inc. Securities Litigation, Case No. 15-cv-01970 SJO (MRWx), and the court appointed co-lead plaintiffs. On September 26, 2015, the plaintiffs filed a consolidated amended complaint purporting to assert claims under the federal securities laws against us, Terry Lingren, John Philpott, and the underwriter of our May 29, 2014 IPO. On February 8, 2016, the court granted our motion to dismiss with leave to amend. On February 23, 2016, the plaintiffs filed a consolidated second amended complaint, in which plaintiffs purport to be acting on behalf of a class consisting of purchasers or acquirers of our common stock between November 6, 2014 and April 2, 2015, as well as a class of persons or entities who purchased or acquired our shares in (or traceable to) our IPO. The plaintiffs alleged that, as a result of the defendants' allegedly false and/or misleading statements and/or omissions concerning our business, operations, prospects and performance, our common stock traded at artificially inflated prices between November 6, 2014 and April 2, 2015. On July 11, 2016, the court entered an order granting in part and denying in part our motion to dismiss the consolidated second amended complaint. The court granted our motion to dismiss with respect to plaintiffs' claims under Section 11 of the Securities Act of 1933 and Section 20(a) of the Securities Exchange Act of 1934. The court also granted our motion to dismiss plaintiffs' claims under Section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder to the extent those claims are premised on alleged misstatements made on February 26, 2015. The court denied our motion to dismiss

with respect to plaintiffs' claims under Section 15 of the Securities Act of 1933, and with respect to plaintiffs' claims under Section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder to the extent those claims are premised on alleged misstatements made in November and December of 2014 and January of 2015. As a result of the court's order, there are no remaining claims pending against the underwriter of our May 29, 2014 IPO. On October 26, 2016, the court issued an order clarifying its July 11, 2016 order on our motion to dismiss, making clear that the court's actual intent was to grant the motion to dismiss with respect to the claims under

Section 15 of the Securities Act of 1933, while denying the motion to dismiss with respect to the claims under Section 20(a) of the Securities Exchange Act of 1934. We filed our answer to plaintiffs' second consolidated amended complaint on August 12, 2016. The court has set a trial date of September 19, 2017.

The parties have reached an agreement in principle to settle the putative class action. The settlement is in the process of being documented so that it may be presented to the court for approval. We can make no assurances that the settlement will be consummated or that the court will approve it.

On September 24, 2015, a purported shareholder derivative action was filed in the United States District Court for the Central District of California, and is pending before the same federal district court judge to whom the putative class action has been assigned. In the derivative action, the plaintiffs allege that certain of our officers and directors breached their fiduciary duties to us, including by allegedly violating the federal securities laws and exposing us to possible financial liability. On November 16, 2015, the court entered an order staying the proceedings in the shareholder derivative action pending certain further developments. The court has set a status conference to take place on May 1, 2017.

We intend to continue to defend ourselves vigorously in these actions.

We are not party to any other legal proceedings. We may, from time to time, be party to litigation and subject to claims incident to the ordinary course of business. As our growth continues, we may become party to an increasing number of litigation matters and claims. The outcome of litigation and claims cannot be predicted with certainty, and the resolution of any future matters could materially affect our future financial position, results of operations or cash flows.

We have directors' and officers' liability insurance, which will be utilized in the defense of these matters. The liability insurance may not cover all of the future liabilities we may incur in connection with the foregoing matters. As of December 31, 2016, we have incurred legal expenses of approximately \$750,000.

Legal fees and other costs associated with such actions are expensed as incurred. We assess, in conjunction with our legal counsel, the need to record a liability for litigation and contingencies. Litigation accruals are recorded when and if it is determined that a loss related matter is both probable and reasonably estimable. Material loss contingencies that are reasonably possible of occurrence, if any, are subject to disclosure. Based on the very early stage of litigation for the cases referred to above, it is not possible to estimate the amount or range of possible loss that might result from an adverse judgment or a settlement of these matters. We will evaluate developments in legal proceedings and other matters on a quarterly basis. As of December 31, 2015 and 2016, there was no litigation or contingency with at least a reasonable possibility of a material loss. No losses have been recorded during the years ended December 31, 2015 and 2016, respectively, with respect to litigation or loss contingencies.

#### NOTE 10—INCOME TAXES

The provision for (benefit from) income taxes by jurisdiction consist of the following for the years ended December 31, 2015 and 2016:

	Year Ended December 31, 2015	Year Ended December 31, 2016
U.S. federal		
Current	\$ —	\$ —
Deferred	—	—
Total U.S. federal	—	—
U.S. state and local		
Current	1,000	1,000
Deferred	—	—
Total U.S. state and local	1,000	1,000
Foreign		
Current	—	—

Edgar Filing: Resonant Inc - Form 10-K

Deferred	—	(23,000 )
Total foreign	—	(23,000 )
Provision for (benefit from) income taxes	\$ 1,000	\$(22,000 )

61

---

Income taxes differ from the amounts computed by applying the U.S. federal income tax rate to pretax income (loss) before income taxes as a result of the following for the years ended December 31, 2015 and 2016:

	Year ended December 31, 2015	Year ended December 31, 2016
Expected income tax benefit	\$(3,291,000)	\$(5,191,000)
State income tax (benefit), net of federal benefit	(693,000 )	(1,022,000 )
Valuation allowance	4,120,000	6,219,000
Permanent differences:		
Stock options	131,000	173,000
Transaction costs	—	31,000
Research & development credit	(174,000 )	(267,000 )
Adjustment to deferred taxes	(102,000 )	(12,000 )
Foreign rate differential	—	28,000
Other	10,000	19,000
Provision for (benefit from) for income taxes	\$1,000	\$(22,000 )

For year ended December 31, 2015 income tax expense was \$1,000. For the year ended December 31, 2016, we recorded a net income tax benefit of \$22,000 which included \$1,000 of income tax expense offset by \$23,000 for the change in deferred foreign taxes. Deferred income tax reflects the tax effects of temporary differences that gave rise to significant portions of our deferred tax assets and liabilities.

Deferred income taxes consisted of the following as of December 31, 2015 and December 31, 2016:

	Year ended December 31, 2015	Year ended December 31, 2016
U.S. federal and state deferred tax assets—long term:		
Accrued payroll	\$ 95,000	\$ 525,000
Fixed assets	—	80,000
Intangibles	763,000	702,000
Research & development credit	804,000	1,257,000
Net operating loss	6,592,000	11,515,000
Stock compensation	379,000	772,000
New jobs credit	7,000	7,000
Total long-term assets	8,640,000	14,858,000
Total deferred tax assets	8,640,000	14,858,000
U.S. federal and state deferred tax liabilities—long term:		
Fixed assets	(1,000 )	—
Total deferred tax liabilities	(1,000 )	—
Net deferred tax assets - long term	8,639,000	14,858,000
Less: Valuation allowance	<del>(8,639,000)</del>	<del>(14,858,000)</del>
Net deferred tax assets	\$ —	\$ —
Foreign deferred tax assets—long term:		
Net operating loss	\$ —	\$ 16,000
Total foreign deferred tax assets	—	16,000
Foreign deferred tax liabilities—long term:		
Intangibles	—	(32,000 )
Total foreign deferred tax liabilities	—	(32,000 )
Net foreign deferred tax liabilities	\$ —	\$ (16,000 )

We recorded a full valuation allowance against our U.S. federal and state net deferred tax assets at December 31, 2015 and December 31, 2016. In determining the need for a valuation allowance, we reviewed all available evidence pursuant to the requirements of FASB ASC 740. Based upon our assessment of all available evidence, we have concluded that it is more likely than not that the net deferred tax assets will not be realized. For the year ended December 31, 2016, the valuation allowance increased by \$6.2 million. For the year ended December 31, 2015, the valuation allowance increased by \$4.1 million.

As of December 31, 2016, we had federal net operating loss carryforwards of approximately \$28.9 million, state net operating loss carryforwards of approximately \$28.9 million and foreign net operating loss carryforwards of \$103,000 in Switzerland. The federal net operating loss carryforwards will begin to expire in 2033, and the state net operating loss carryforwards will begin to expire in 2033. Our ability to utilize net operating loss carryforwards may be limited in the event that a change in ownership, as defined in Section 382 of the Internal Revenue Code, occurs in the future. In the event a change of ownership occurs, it will limit the annual usage of the carryforwards in future years.

Management believes that certain changes in control have occurred which resulted in limitations on our net operating loss carryforwards; however, management has determined that these limitations will not impact the ultimate utilization of the net operating loss carryforwards.

We recognize interest and penalties related to income tax matters in income taxes, and there were none during the years ended December 31, 2015 and 2016.

The adoption of ASC 740 guidance required us to identify, evaluate and measure all uncertain tax positions taken or to be taken on tax returns and to record liabilities for the amount of these positions that may not be sustained, or may only partially be sustained, upon examination by the relevant taxing authorities. Although we believe that our

estimates and judgments were reasonable, actual results may differ from these estimates. Some or all of these judgments are subject to review by the taxing authorities. We have no significant uncertain tax positions for the years ended December 31, 2015 and 2016.



Our annual income taxes and the determination of the resulting deferred tax assets and liabilities involve a significant amount of judgment. Our judgments, assumptions and estimates relative to current income taxes take into account current tax laws, their interpretation of current tax laws and possible outcomes of future audits conducted by domestic tax authorities. We operate within federal and state taxing jurisdictions and are subject to audit in these jurisdictions. These audits can involve complex issues which may require an extended period of time to resolve. We are currently not being examined by any tax authorities. We are subject to taxation in the United States, California, Massachusetts and Switzerland. As of December 31, 2016, our tax years remain open to examination by the taxing authorities for all years since our incorporation in 2013.

#### NOTE 11—RELATED PARTY TRANSACTIONS

In August 2016, we entered into a consulting agreement with a member of our board of directors. Under the agreement, the board member will provide engineering design and fabrication advisory services for an hourly rate, with total payments not to exceed \$120,000 during any twelve-month period. During the year ended December 31, 2016, we incurred expenses of \$42,000 in connection with the consulting agreement. As of December 31, 2016 we owed \$16,000 to the board member in connection with this agreement, which is included in accounts payable.

#### NOTE 12—EMPLOYEE BENEFIT PLAN

We have a 401(k) Savings Retirement Plan that covers substantially all domestic employees who meet the plan's eligibility requirements and provides for an employee elective contribution and employer matching contributions. We recorded matching contributions to the plan of \$173,000 and \$204,000 for the years ended December 31, 2015 and December 31, 2016, respectively.

#### NOTE 13—SUBSEQUENT EVENTS

In January 2017, we signed a new lease for 5,248 square feet of office space within the same building of our current satellite office in Burlingame, California commencing February 2017. The lease has a five year term, and rental costs of approximately \$17,000 per month.

Effective as of January 9, 2017, we entered into a separation agreement with our former Chief Executive Officer ("CEO") in connection with his resignation from the company. Under the separation agreement, the former CEO will receive a sum of \$450,000, payable in six equal installments on January 20, 2017, April 1, 2017, July 1, 2017, October 1, 2017, January 1, 2018 and March 14, 2018; reimbursement of up to approximately \$2,300 per month for premiums for continuation coverage for health, dental and vision insurance for our former CEO and his eligible dependents for a period of 12 months or such earlier date when he enrolls for similar coverage with a subsequent employer; acceleration of vesting of a portion of the unvested restricted stock units and unvested stock options; extension of time to exercise all vested stock options until July 9, 2017; participation in the 2016 bonus plan to be paid out in 2017; and approximately \$23,000 in satisfaction of any pro-rated bonus for fiscal year 2017.

On February 22, 2017, we raised gross proceeds of \$7.5 million in a private placement of units consisting of one share of our common stock and one warrant to purchase one share of common stock. The units were priced at \$4.61, which was the average closing price of our common stock for the ten trading days ending February 16, 2017. The warrants have an exercise price of \$8.25 per share and are exercisable for a period commencing six months and ending 2.5 years from the closing date.

Effective April 2017, we amended our Goleta office lease to expand our leased space by approximately 2,000 square feet and extend our lease term through July, 2018 with a one year renewal option. Rental costs, including base rent and operating expenses, are approximately \$21,000 per month.

We evaluated subsequent events through March 30, 2017, the date of issuance of the consolidated financial statements for the year ended December 31, 2016.

**ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

**ITEM 9A. CONTROLS AND PROCEDURES**

**Evaluation of Disclosure Controls and Procedures**

The phrase “disclosure controls and procedures” refers to controls and procedures designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934, as amended, or the Exchange Act, such as this Annual Report on Form 10-K, is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the U.S. Securities and Exchange Commission, or SEC. Disclosure controls and procedures are also designed to ensure that such information is accumulated and communicated to our management, including our chief executive officer, or CEO, and chief financial officer, or CFO, as appropriate to allow timely decision regarding required disclosure.

Our management, with the participation of our CEO and CFO, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of December 31, 2016, the end of the period covered by this Annual Report on Form 10-K. Based on such evaluation, our CEO and CFO have concluded that as of December 31, 2016, our disclosure controls and procedures were designed at a reasonable assurance level and were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the rules and forms of the SEC, and that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate, to allow timely decisions regarding required disclosure.

**Management’s Report on Internal Control over Financial Reporting**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with generally accepted accounting principles. Our management, with the participation of our CEO and CFO, has assessed the effectiveness of the internal control over financial reporting as of December 31, 2016. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) in Internal Control - Integrated Framework (2013 Framework). Based on this evaluation, our management has concluded that our internal control over financial reporting was effective as of December 31, 2016.

This Annual Report on Form 10-K does not include an attestation report of our registered public accounting firm on our internal control over financial reporting due to an exemption established by the JOBS Act for “emerging growth companies.”

**Changes in Internal Controls over Financial Reporting**

There was no change in our internal control over financial reporting identified in management’s evaluation pursuant to Rules 13a-15(d) or 15d-15(d) of the Exchange Act during the quarter ended December 31, 2016 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

**Limitations on Effectiveness of Controls and Procedures**

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

**ITEM 9B. OTHER INFORMATION**

None.



Table of Contents

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item is incorporated by reference to the disclosure appearing under the headings “Election of Directors,” “Executive Officers,” “Board of Directors and Corporate Governance” and “Other Matters” in our Proxy Statement for our 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference to the disclosure appearing under the heading “Executive Compensation” in our Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated by reference to the disclosure appearing under the headings “Security Ownership of Certain Beneficial Owners and Management” and “Equity Compensation Plan Information” in our Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference to the disclosure appearing under the heading “Certain Relationships and Related Party Transactions” and “Board of Directors and Corporate Governance -- Director Independence” in our Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated by reference to the disclosure appearing under the heading “Ratification of Appointment of Independent Registered Public Accounting Firm” in our Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2016.

Table of Contents

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

We have filed the following documents as part of this Annual Report on Form 10-K:

1. Consolidated Financial Statements

Our consolidated financial statements are listed in the “Index to Consolidated Financial Statements” under Part II, Item 8 of this Annual Report on Form 10-K.

2. Financial Statement Schedules

All schedules have been omitted because they are not required, not applicable, not present in amounts sufficient to require submission of the schedule, or the required information is otherwise included in our consolidated financial statements and related notes.

3. Exhibits

See the Exhibit Index immediately following the signature pages of this Annual Report on Form 10-K.

ITEM 16. FORM 10-K SUMMARY

None.

68

---

Table of Contents

## SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Dated: March 30, 2017 Resonant Inc.

By: /s/ JEFF A. KILLIAN  
 JEFF A. KILLIAN  
 Chief Financial Officer  
 (Principal Financial and Accounting Officer)

## POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints George B. Holmes and Jeff A. Killian, and each of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution for him or her, and in his or her name in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, and any of them or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ George B. Holmes George B. Holmes	Chief Executive Officer and Director (Principal Executive Officer)	March 30, 2017
/s/ Jeff A. Killian Jeff A. Killian	Chief Financial Officer (Principal Financial and Accounting Officer)	March 30, 2017
/s/ Robert B. Hammond Robert B. Hammond	Chief Technology Officer and Director	March 30, 2017
/s/ John E. Major John E. Major	Chairman of the Board of Directors	March 30, 2017
/s/ Janet K. Cooper Janet K. Cooper	Director	March 30, 2017
/s/ Michael J. Fox Michael J. Fox	Director	March 30, 2017
/s/ Thomas R. Joseph Thomas R. Joseph	Director	March 30, 2017
/s/ Rick Kornfeld Rick Kornfeld	Director	March 30, 2017





Table of Contents

## EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed
		Form	File Number	Exhibit	Filing Date Herewith
2.1	Share Purchase Agreement, dated July 6, 2016, between the Registrant and Victor Plessky	8-K	001-36467	2.1	7/8/2016
3.1	Amended and Restated Certificate of Incorporation of the Registrant	8-K	001-36467	3.1	6/5/2014
3.2	Amended and Restated Bylaws of the Registrant	8-K	001-36467	3.2	6/5/2014
4.1	Form of the Registrant's common stock certificate	S-1/A	333-193552	4.1	4/11/2014
4.2	Form of Underwriter's Warrant	S-1/A	333-193552	4.2	5/16/2014
4.3	Form of Warrant, dated April 25, 2016	8-K	001-36467	10.3	4/26/2016
4.4	Form of Agent Warrant, dated April 25, 2016	8-K	001-36467	10.4	4/26/2016
4.5	Form of Underwriter's Warrant	8-K	001-36467	4.1	9/9/2016
4.6	Amended and Restated Warrant to Purchase Common Stock, dated November 15, 2013, issued by the Registrant in favor of MDB Capital Group LLC for 222,222 shares of common stock	S-1	333-193552	10.25	1/24/2014
4.7	Amended and Restated Warrant to Purchase Common Stock, dated November 15, 2013, issued by the Registrant in favor of MDB Capital Group LLC for a to-be-determined number of shares of common stock	S-1	333-193552	10.26	1/24/2014
4.8	Warrant to Purchase Common Stock (No. A-1), dated June 17, 2013, issued by the Registrant in favor of Terry Lingren for 41,666 shares of common stock	S-1	333-193552	10.27	1/24/2014
4.9	Warrant to Purchase Common Stock (No. A-2), dated June 17, 2013, issued by the Registrant in favor of Robert Hammond for 41,666 shares of common stock	S-1	333-193552	10.28	1/24/2014
4.10	Warrant to Purchase Common Stock (No. A-3), dated June 17, 2013, issued by the Registrant in favor of Neal Fenzi for 41,666 shares of common stock	S-1	333-193552	10.29	1/24/2014
4.11	Warrant to Purchase Common Stock (No. A-4), dated June 17, 2013, issued by the Registrant in favor of Terry Lingren for 41,667 shares of common stock	S-1	333-193552	10.30	1/24/2014
4.12	Warrant to Purchase Common Stock (No. A-5), dated June 17, 2013, issued by the Registrant in favor of Robert Hammond for 41,667 shares of common stock	S-1	333-193552	10.31	1/24/2014
4.13	Warrant to Purchase Common Stock (No. A-6), dated June 17, 2013, issued by the Registrant in favor of Neal Fenzi for 41,667 shares of common stock	S-1	333-193552	10.32	1/24/2014
4.14	Warrant Agreement issued to MZ Group	10-Q	001-36467	10.3	8/8/2014
4.15	Warrant Agreement issued to Investors Relations Consultant	10-K	001-36467	10.40	3/27/2015

EX-1

Edgar Filing: Resonant Inc - Form 10-K

Table of Contents

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File Number	Exhibit	Filing Date	
10.1*	Form of Indemnification Agreement between the Registrant and each of its directors and officers	S-1	333-193552	10.1	1/24/2014	
10.2.1*	Registrant's Amended and Restated 2014 Omnibus Incentive Plan	S-1/A	333-193552	10.2	4/11/2014	
10.2.2*	Amendment No. 1 to Registrant's Amended and Restated 2014 Omnibus Incentive Plan	S-8	333-211893	10.1	6/7/2016	
10.3*	Offer Letter between the Registrant and Robert Hammond, dated June 17, 2013	S-1	333-193552	10.4	1/24/2014	
10.4*	Offer Letter between the Registrant and Neal Fenzi, dated June 17, 2013	S-1	333-193552	10.5	1/24/2014	
10.5*	Offer Letter between the Registrant and George B. Holmes, dated February 9, 2016	8-K	001-36467	10.1	2/29/2016	
10.6*	Offer Letter between the Registrant and Jeffrey Killian, dated October 6, 2016	8-K	001-36467	10.1	11/10/2016	
10.7*	Form of Severance/Change-in-Control Agreement Restricted Stock Unit Agreement, with a grant date of February 29, 2016 between the Registrant and George B. Holmes	10-K	001-36467	10.41	3/27/2015	
10.8*	Restricted Stock Unit Agreement, with a grant date of April 25, 2016, between the Registrant and George B. Holmes	8-K	001-36467	10.2	2/29/2016	
10.9*	Restricted Stock Unit Agreement, with a grant date of August 8, 2016, between the Registrant and George B. Holmes	S-8	333-211894	10.2	6/7/2016	
10.10*	Restricted Stock Unit Agreement, with a grant date of October 24, 2016, between the Registrant and Jeff A. Killian	8-K	001-36467	10.1	8/12/2016	
10.11*	Outside Director Compensation Policy Separation Agreement, dated July 28, 2016, between John Philpott and the Registrant	S-8	333-214571	10.1	10/12/2016	
10.12*	Letter Agreement, dated July 26, 2016, between Bridgepoint Consulting and the Registrant	10-K	001-36467	10.6	3/25/2016	
10.13*	Multi-Tenant Industrial Lease, dated August 9, 2013, between the Registrant and Nassau Land Company, L.P.	10-Q	001-36467	10.1	11/10/2016	
10.14*	First Amendment to Lease, dated March 20, 2014, between Registrant and Nassau Land Company, L.P.	10-Q	001-36467	10.2	11/10/2016	
10.15.1	Second Amendment to Lease, dated September 15, 2014, between Registrant and Nassau Land Company, L.P.	S-1	333-193552	10.33	1/24/2014	
10.15.2	Third Amendment to Lease, dated June 1, 2016, between Registrant and Nassau Land Company, L.P.	10-K	001-36467	10.33.2	3/27/2015	
10.15.3	Fourth Amendment to Lease, dated June 1, 2016, between Registrant and Nassau Land Company, L.P.	10-K	001-36467	10.33.3	3/27/2015	
10.15.4						X
10.15.5						X

EX-2

Edgar Filing: Resonant Inc - Form 10-K

Table of Contents

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed	
		Form	File Number	Exhibit	Filing Date	Herewith
10.16	Standard Multi-Tenant Office Lease - Gross, dated December 16, 2016, between the Registrant and SeaBreeze I Venture - TIC.	8-K	001-36467	10.1	1/6/2017	
10.17	Securities Purchase Agreement, dated April 20, 2016, between the Registrant and the Investors listed on the schedule of buyers attached thereto	8-K	001-36467	10.1	4/26/2016	
10.18	Registration Rights Agreement, dated April 25, 2016	8-K	001-36467	10.2	4/26/2016	
10.19	Registration Rights Agreement for Investors, dated June 17, 2013, by and among the Registrant and the persons listed on Schedule A thereto	S-1	333-193552	10.23	1/24/2014	
10.20	Registration Rights Agreement for Warrants, dated June 17, 2013, by and among the Registrant and MDB Capital Group LLC	S-1	333-193552	10.24	1/24/2014	
21.1	List of Subsidiaries					X
23.1	Consent of Crowe Horwath LLP					X
24.1	Power of Attorney (included on signature page)					X
31.1	Certification of Principal Executive Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1#	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.INS	XBRL Instance Document					X
101.SCH	XBRL Taxonomy Extension Schema Document					X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					X

\* Each a management contract or compensatory plan or arrangement required to be filed as an exhibit to this annual report on Form 10-K.

# The information in this exhibit is furnished and deemed not filed with the Securities and Exchange Commission for purposes of section 18 of the Exchange Act of 1934, as amended, and is not to be incorporated by reference into any

Table of Contents

filing of Resonant Inc. under the Securities Act of 1933, as amended, or the Exchange Act of 1934, as amended, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

EX-4